

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 16 OF 19

JDC
NO. 18844
REV. A

JOB SIGNAL CONDITIONER RADAR RESOLVERS AND 120V SUPPLY TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.c (20.1)	RR TRUN 1X COS gain at 1v output	v/v	Step 23.c (22.a)		Step 23.c (22.b)	
23.c (20.m)	RR TRUN 1X COS gain at 0v output	v/v	Step 23.c (22.a)		Step 23.c (22.b)	
23.c (21)	RR TRUN 1X COS average gain	v/v				
23.c (22.a)	MIN VALUE	v/v				
23.c (22.b)	MAX VALUE	v/v				
27	120V PVR output at 85v input (GG1040V)	vdc				
28	Difference between bias and output	vdc	-2.2		-2.8	
30	110v input	vdc	109.9		110.1	
31	120V PVR output at 110v input	vdc				
32	Difference between bias and output	vdc	-0.30		+0.30	
35	120V PVR output at 135v input	vdc				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36	Difference between bias and output	vdc	2.2		2.8	
38	120V PVR noise	mvp-p			60	
41.a	120V PVR 5v output	vdc	4.995		5.005	
41.b	120V PVR 4v output	vdc	3.995		4.005	
41.c	120V PVR 3.75v output	vdc	3.745		3.755	
41.d	120V PVR 3.5v output	vdc	3.495		3.505	
41.e	120V PVR 3.25v output	vdc	3.245		3.255	
41.f	120V PVR 3v output	vdc	2.995		3.005	
41.g	120V PVR 2v output	vdc	.995		2.005	
41.h	120V PVR 1v output	vdc	0.995		1.005	
41.1	120V PVR 0v output	vdc	-0.005		+0.005	
42.a	120V PVR input at 5v output	vdc				
42.b	120V PVR input at 4v output	vdc				
42.c	120V PVR input at 3.75v output	vdc				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.d	120V PVR input at 3.5v output	vdc				
42.e	120V PVR input at 3.25v output	vdc				
42.f	120V PVR input at 3v output	vdc				
42.g	120V PVR input at 2v output	vdc				
42.h	120V PVR input at 1v output	vdc				
42.1	120V PVR input at 0v output	vdc				
44.a	120V PVR gain at 5v output	v/v	Step 46.a		Step 46.b	
44.b	120V PVR gain at 4v output	v/v	Step 46.a		Step 46.b	
44.f	120V PVR gain at 3v output	v/v	Step 46.a		Step 46.b	
44.g	120V PVR gain at 2v output	v/v	Step 46.a		Step 46.b	
44.h	120V PVR gain at 1v output	v/v	Step 46.a		Step 46.b	
44.1	120V PVR gain at 0v output	v/v	Step 46.a		Step 46.b	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
45	120V PVR average gain	v/v				
46.a	MIN VALUE	v/v				
46.b	MAX VALUE	v/v				

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SUBSYSTEM
DESCRIPTION Pre-installation acceptance of torque motor and IX sine gimbals channels in flight qualification LEM signal conditioner.

REV.	DATE	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
A	2-18-67	32979	2, 3, 4	JDC MUT NASA EA 47	Procurement spec 20072.19
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table I is provided as an aid for checkout and trouble analysis. The table lists crossbar setting.

Table I. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
46	IG TORQUE MOTOR	J1-B31	J1-D18	J1-D12	J1-F12	GG2110C
47	MG TORQUE MOTOR	J1-D31	J1-D18	J1-G12	J1-F12	GG2140C
48	OG TORQUE MOTOR	J1-G31	J1-D18	J1-F13	J1-F12	GG2170C
27	OG RSVR SIN	J1-F29	J1-F28	J1-C7	J1-B6	GG2181V
33	IG RSVR SIN	J1-A29	J1-A28	J1-B7	J1-B6	GG2121V
34	MG RSVR SIN	J1-C29	J1-C28	J1-A7	J1-B6	GG2151V
04	RR SHAFT FINE ERROR	J1-F33	J1-A33	J1-G10	J1-F10	GG3311V
05	RR TRUN FINE ERROR	J1-G33	J1-A33	J1-F9	J1-F10	GG3321V
52	IMU HEATER CURRENT	J1-D20	J1-D18	J1-C11	J1-C12	GG3302X
11	IMU BLOWER CURRENT	J1-D19	J1-F16	J1-D11	J1-C12	GG3303X

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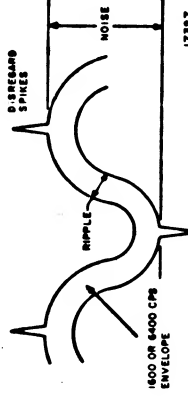


Figure 1. Typical Ripple and Noise Pattern

10. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
11. Press SCOPE off and VOLTMETER on.
12. Adjust DC SCALER until DVM indicates output voltage listed below. Press DC POSITIVE/DC NEGATIVE to light as shown. Perform steps 13 and 14 for each voltage.

SUBSYSTEM

1. Adjust T50-2 power supply until voltmeter on T50-2 indicates 35 vdc.
2. Set crossbar to 46 (IG TORQUE MOTOR channel).
3. Set DC SCALER to 0.00000.
4. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR OUTPUT.
5. Measure and record dc offset voltage indicated on DVM.
6. Press DC POSITIVE.
7. Adjust DC SCALER until DVM indicates output voltage of 5.000 (+0.005) vdc.
8. Press VOLTMETER off and SCOPE on.
9. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

$$\text{GAIN} = \frac{E_{\text{in}}}{E_{\text{out}} (\text{step 12}) - E_{\text{offset}} (\text{step 5})}$$

16. Add gains recorded in step 15, divide by 6 to find average gain, and record average.
17. Compute and record percentage of difference between each gain, a through f, and average gain.
18. Set crossbar to next position, listed below, and repeat steps 3 through 17. Continue until all following tests are completed:
Test XBAR Channel tested
a. 47 MG TORQUE MOTOR
b. 48 OG TORQUE MOTOR
19. Set crossbar to 41 (+2.5 V BIAS channel).
20. Press PUSH TO ADVANCE and X BAR OUTPUT.

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SUBSYSTEM

21. Measure and record dc bias voltage indicated on DVM.
22. Set crossbar to 27 (OG RSVR SIN channel).
23. Set 800 CPS PHASE GENERATOR to 5 (+0.1) degrees.
24. Set 3200/800 CPS ADJUST to 0.00000.
25. Press PUSH TO ADVANCE and PUSH TO INITIATE on.
26. Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
27. Record difference between value recorded in step 26 and value recorded in step 21.
28. Algebraically add value recorded in step 26 to +2.5 and record.
29. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 28.
30. Press X BAR INPUT and record ac input voltage indicated on DVM.
31. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
32. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
33. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
34. Press SCOPE off and VOLTMETER on.
35. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 36 and 37 for each voltage.

36. Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through f.
37. Press X BAR OUTPUT and return to step 35 until all tests are completed.
38. Compute and record gains a through f using following equation for each gain:
$$\text{GAIN} = \frac{E_{\text{out}} (\text{step 35}) - E_{\text{offset}} (\text{step 26})}{E_{\text{in}} (\text{step 36})}$$

39. Add gains recorded in step 38, divide by 6 to find average gain, and record average.
40. Compute and record percentage of difference between each gain, a through f, and average gain.
41. Set crossbar to next position, listed below, and repeat steps 23 through 40. Continue until all following tests are completed:

Test	XBAR	Channel tested
a.	33	IG RSVR SIN
b.	34	MG RSVR SIN

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42. Set crossbar to 50 (+2.5 V BIAS channel). Press PUSH TO ADVANCE and X BAR OUTPUT. Measure and record dc bias voltage indicated on DVM.
43. Set crossbar to 04 (RR SHAFT FINE ERROR channel) and set 800 CPS PHASE GENERATOR to 0 (+0.1) degree.
44. Set 3200/800 CPS ADJUST to 0.00000.
45. Press PUSH TO ADVANCE and PUSH TO INITIATE on.
46. Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
47. Record difference between value recorded in step 46 and value recorded in step 42.
48. Algebraically add value recorded in step 46 to +2.5 and record.
49. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 48.
50. Press X BAR INPUT and record ac input voltage indicated on DVM.
51. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
52. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
53. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
54. Press SCOPE off and VOLTMETER on.
55. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 56 and 57 for each voltage.

56. Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through f.
57. Press X BAR OUTPUT and return to step 55 until all tests are completed.
58. Compute and record gains a through f using following equation for each gain:
$$\text{GAIN} = \frac{E_{\text{out}} (\text{step 55}) - E_{\text{offset}} (\text{step 46})}{E_{\text{in}} (\text{step 56})}$$

59. Add gains recorded in step 58, divide by 6 to find average gain, and record average.
60. Compute and record percentage of difference between each gain, a through f, and average gain.
61. Set crossbar to 05 (RR TRUN FINE ERROR channel) and repeat steps 43 through 60.
62. Set crossbar to 52 (IMU HEATER CURRENT channel).
63. Press X BAR INPUT and PUSH TO ADVANCE.

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SUBSYSTEM

ASSY

64. Adjust DC SCALER until DVM indicates 28 (± 0.5) vdc.
65. Press PUSH TO INITIATE on and X BAR OUTPUT.
66. Measure and record dc output voltage indicated on DVM.
67. Press VOLTMETER off and SCOPE on.
68. Measure peak-to-peak ripple voltage on oscilloscope and record.
69. Press SCOPE off and VOLTMETER on.
70. Set crossbar to 11 (IMU BLOWER CURRENT channel).
71. Press X BAR INPUT and PUSH TO ADVANCE.
72. Adjust 3200/800 CPS ADJUST until DVM indicates 28 (± 0.28) vrms.
73. Press PUSH TO INITIATE on and X BAR OUTPUT.
74. Measure and record dc output voltage indicated on DVM.
75. Press VOLTMETER off and SCOPE on.
76. Measure peak-to-peak ripple voltage on oscilloscope and record.
77. Press SCOPE off and VOLTMETER on.

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JDC
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INITIAL TDRR 32500

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

ASSEMBLY UNDER TEST				TEST HISTORY			
TITLE	SER. NO.	DWG	REV.	DATE	START	END	SITE / LOCATION
				TIME	START	END	TOTAL ELAPSED
MAJOR GROUND SUPPORT EQUIPMENT							
NAME				SER. NO.			
NAME				SER. NO.			
CONDUCTED BY				APPROVED BY			
NAME/AFFILIATION				NAME/AFFILIATION			

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
5	IG TORQUE MTR offset (GG2110C)	vdc	2.425		2.575	

NOTE
Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. GG number is listed in first data sheet entry for each channel. Figure 1 is provided as an aid during performance of ripple and noise measurements.

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
9	IG TORQUE MTR ripple	mv p-p			50	
10	IG TORQUE MTR noise	mv p-p			150	
13.a	IG TORQUE MTR Input at 5 v output	vdc	0.445		0.555	
13.b	IG TORQUE MTR Input at 4 v output	vdc				
13.c	IG TORQUE MTR Input at 3 v output	vdc				
13.d	IG TORQUE MTR Input at 2 v output	vdc				
13.e	IG TORQUE MTR Input at 1 v output	vdc				
13.f	IG TORQUE MTR Input at 0 v output	vdc				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
15.a	IG TORQUE MTR gain at 5 v output	v/v				
15.b	IG TORQUE MTR gain at 4 v output	v/v				
15.c	IG TORQUE MTR gain at 3 v output	v/v				
15.d	IG TORQUE MTR gain at 2 v output	v/v				
15.e	IG TORQUE MTR gain at 1 v output	v/v				
15.f	IG TORQUE MTR gain at 0 v output	v/v				
16	IG TORQUE MTR average gain	v/v				
17.a	Difference between gain at 5 v output and average gain	percent			4	
17.b	Difference between gain at 4 v output and average gain	percent			4	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
17.c	Difference between gain at 3 v output and average gain	percent			4	
17.d	Difference between gain at 2 v output and average gain	percent			4	
17.e	Difference between gain at 1 v output and average gain	percent			4	
17.f	Difference between gain at 0 v output and average gain	percent			4	
18.a (5)	MG TORQUE MTR offset (GG2140C)	vdc	2.425		2.575	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (9)	MG TORQUE MTR ripple	mv p-p			50	
18.a (10)	MG TORQUE MTR noise	mv p-p			150	
18.a (13.a)	MG TORQUE MTR Input at 5 v output	vdc	0.445		0.555	
18.a (13.b)	MG TORQUE MTR Input at 4 v output	vdc				
18.a (13.c)	MG TORQUE MTR Input at 3 v output	vdc				
18.a (13.d)	MG TORQUE MTR Input at 2 v output	vdc				
18.a (13.e)	MG TORQUE MTR Input at 1 v output	vdc				
18.a (13.f)	MG TORQUE MTR Input at 0 v output	vdc				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (15.a)	MG TORQUE MTR gain at 5 v output	v/v				
18.a (15.b)	MG TORQUE MTR gain at 4 v output	v/v				
18.a (15.c)	MG TORQUE MTR gain at 3 v output	v/v				
18.a (15.d)	MG TORQUE MTR gain at 2 v output	v/v				
18.a (15.e)	MG TORQUE MTR gain at 1 v output	v/v				
18.a (15.f)	MG TORQUE MTR gain at 0 v output	v/v				
18.a (16)	MG TORQUE MTR average gain	v/v				
18.a (17.a)	Difference between gain at 5 v output and average gain	percent			4	
18.a (17.b)	Difference between gain at 4 v output and average gain	percent			4	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (17.c)	Difference between gain at 3 v output and average gain	percent			4	
18.a (17.d)	Difference between gain at 2 v output and average gain	percent			4	
18.a (17.e)	Difference between gain at 1 v output and average gain	percent			4	
18.a (17.f)	Difference between gain at 0 v output and average gain	percent			4	
18.b (5)	OG TORQUE MTR offset (GG2170C)	vdc	2.425		2.575	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (9)	OG TORQUE MTR ripple	mv p-p			50	
18.b (10)	OG TORQUE MTR noise	mv p-p			150	
18.b (13.a)	OG TORQUE MTR input at 5 v output	vdc	0.801		0.999	
18.b (13.b)	OG TORQUE MTR input at 4 v output	vdc				
18.b (13.c)	OG TORQUE MTR input at 3 v output	vdc				
18.b (13.d)	OG TORQUE MTR input at 2 v output	vdc				
18.b (13.e)	OG TORQUE MTR input at 1 v output	vdc				
18.b (18.f)	OG TORQUE MTR input at 0 v output	vdc				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (15.a)	OG TORQUE MTR gain at 5 v output	v/v				
18.b (15.b)	OG TORQUE MTR gain at 4 v output	v/v				
18.b (15.c)	OG TORQUE MTR gain at 3 v output	v/v				
18.b (15.d)	OG TORQUE MTR gain at 2 v output	v/v				
18.b (15.e)	OG TORQUE MTR gain at 1 v output	v/v				
18.b (15.f)	OG TORQUE MTR gain at 0 v output	v/v				
18.b (16)	OG TORQUE MTR average gain	v/v				
18.b (17.a)	Difference between gain at 5 v output and average gain	percent			4	
18.b (17.b)	Difference between gain at 4 v output and average gain	percent			4	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (17.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
18.b (17.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
18.b (17.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
18.b (17.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
21	Bias	vdc	2.475		2.525	
26	OG RSVR SIN offset (GG 2181V)	vdc				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
27	Difference between bias and offset	mv			10	
28	Algebraically add +2.5 to offset	vdc				
30	OG RSVR SIN input	v rms	4.45		5.55	
32	OG RSVR SIN ripple	mv p-p			150	
33	OG RSVR SIN noise	mv p-p			250	
36.a	OG RSVR SIN input at 5 v output	v rms				
36.b	OG RSVR SIN input at 4 v output	v rms				
36.c	OG RSVR SIN input at 3 v output	v rms				
36.d	OG RSVR SIN input at 2 v output	v rms				
36.e	OG RSVR SIN input at 1 v output	v rms				
36.f	OG RSVR SIN input at 0 v output	v rms				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
38.a	OG RSVR SIN gain at 5 v output	v/v				
38.b	OG RSVR SIN gain at 4 v output	v/v				
38.c	OG RSVR SIN gain at 3 v output	v/v				
38.d	OG RSVR SIN gain at 2 v output	v/v				
38.e	OG RSVR SIN gain at 1 v output	v/v				
38.f	OG RSVR SIN gain at 0 v output	v/v				
39	OG RSVR SIN average gain	v/v				
40.a	Difference between gain at 5 v output and average gain	percent			4	
40.b	Difference between gain at 4 v output and average gain	percent			4	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
40.c	Difference be- tween gain at 3 v output and average gain	percent			4	
40.d	Difference be- tween gain at 2 v output and average gain	percent			4	
40.e	Difference be- tween gain at 1 v output and average gain	percent			4	
40.f	Difference be- tween gain at 0 v output and average gain	percent			4	
41.a (26)	IG RSVR SIN offset (GG2121V)	vdc				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (27)	Difference between bias and offset	mv			10	
41.a (28)	Algebraically add +2.5 to offset	vdc				
41.a (30)	IG RSVR SIN input	v rms	4.45		5.55	
41.a (32)	IG RSVR SIN ripple	mv p-p			150	
41.a (33)	IG RSVR SIN noise	mv p-p			250	
41.a (36.a)	IG RSVR SIN input at 5 v output	v rms				
41.a (36.b)	IG RSVR SIN input at 4 v output	v rms				
41.a (36.c)	IG RSVR SIN input at 3 v output	v rms				
41.a (36.d)	IG RSVR SIN input at 2 v output	v rms				
41.a (36.e)	IG RSVR SIN input at 1 v output	v rms				
41.a (36.f)	IG RSVR SIN input at 0 v output	v rms				

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JDC
NO. 18845
REV. A

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (38.a)	IG RSVR SIN gain at 5 v output	v/v				
41.a (38.b)	IG RSVR SIN gain at 4 v output	v/v				
41.a (38.c)	IG RSVR SIN gain at 3 v output	v/v				
41.a (38.d)	IG RSVR SIN gain at 2 v output	v/v				
41.a (38.e)	IG RSVR SIN gain at 1 v output	v/v				
41.a (38.f)	IG RSVR SIN gain at 0 v output	v/v				
41.a (39)	IG RSVR SIN average gain	v/v				
41.a (40.a)	Difference between gain at 5 v output and average gain	percent			4	
41.a (40.b)	Difference between gain at 4 v output and average gain	percent			4	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (40.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
41.a (40.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
41.a (40.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
41.a (40.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
41.b (26)	MG RSVR SIN offset (GG2151V)	vdc				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (27)	Difference between bias and offset	mV			10	
41.b (28)	Algebraically add +2.5 to offset	vdc				
41.b (30)	MG RSVR SIN Input	vrms	4.45		5.55	
41.b (32)	MG RSVR SIN ripple	mV p-p			150	
41.b (33)	MG RSVR SIN noise	mV p-p			250	
41.b (36.a)	MG RSVR SIN Input at 5 v output	vrms				
41.b (36.b)	MG RSVR SIN Input at 4 v output	vrms				
41.b (36.c)	MG RSVR SIN Input at 3 v output	vrms				
41.b (36.d)	MG RSVR SIN Input at 2 v output	vrms				
41.b (36.e)	MG RSVR SIN Input at 1 v output	vrms				
41.b (36.f)	MG RSVR SIN Input at 0 v output	vrms				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (38.a)	MG RSVR SIN gain at 5 v output	v/v				
41.b (38.b)	MG RSVR SIN gain at 4 v output	v/v				
41.b (38.c)	MG RSVR SIN gain at 3 v output	v/v				
41.b (38.d)	MG RSVR SIN gain at 2 v output	v/v				
41.b (38.e)	MG RSVR SIN gain at 1 v output	v/v				
41.b (38.f)	MG RSVR SIN gain at 0 v output	v/v				
41.b (39)	MG RSVR SIN average gain	v/v				
41.b (40.a)	Difference between gain at 5 v output and average gain	percent			4	
41.b (40.b)	Difference between gain at 4 v output and average gain	percent			4	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (40.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
41.b (40.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
41.b (40.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
41.b (40.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
42	Bias	vdc	2.475		2.525	
46	RR SHAFT FINE ERROR offset (GG3311V)	vdc				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
47	Difference between bias and offset	mVdc			10	
48	Algebraically add +2.5 to offset	Vdc				
50	RR SHAFT FINE ERROR input	Vrms	1.08		1.32	
52	RR SHAFT FINE ERROR ripple	mV p-p			100	
53	RR SHAFT FINE ERROR noise	mV p-p			100	
56.a	RR SHAFT FINE ERROR input at 5 v output	Vrms				
56.b	RR SHAFT FINE ERROR input at 4 v output	Vrms				
56.c	RR SHAFT FINE ERROR input at 3 v output	Vrms				
56.d	RR SHAFT FINE ERROR input at 2 v output	Vrms				
56.e	RR SHAFT FINE ERROR input at 1 v output	Vrms				
56.f	RR SHAFT FINE ERROR input at 0 v output	Vrms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
58.a	RR SHAFT FINE ERROR gain at 5 v output	V/V				
58.b	RR SHAFT FINE ERROR gain at 4 v output	V/V				
58.c	RR SHAFT FINE ERROR gain at 3 v output	V/V				
58.d	RR SHAFT FINE ERROR gain at 2 v output	V/V				
58.e	RR SHAFT FINE ERROR gain at 1 v output	V/V				
58.f	RR SHAFT FINE ERROR gain at 0 v output	V/V				
59	RR SHAFT FINE ERROR average gain	V/V				
60.a	Difference between gain at 5 v output and average gain	percent			4	
60.b	Difference between gain at 4 v output and average gain	percent			4	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
60.c	Difference be- tween gain at 3 v output and average gain	percent			4	
60.d	Difference be- tween gain at 2 v output and average gain	percent			4	
60.e	Difference be- tween gain at 1 v output and average gain	percent			4	
60.f	Difference be- tween gain at 0 v output and average gain	percent			4	
61 (46)	RR TRUN FINE ERROR offset (GG3321V)	Vdc				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (47)	Difference between bias and offset	mVdc			10	
61 (48)	Algebraically add +2.5 to offset	Vdc				
61 (50)	RR TRUN FINE ERROR input	Vrms	1.08		1.32	
61 (52)	RR TRUN FINE ERROR ripple	mV p-p			100	
61 (53)	RR TRUN FINE ERROR noise	mV p-p			100	
61 (56.a)	RR TRUN FINE ERROR input at 5 v output	Vrms				
61 (56.b)	RR TRUN FINE ERROR input at 4 v output	Vrms				
61 (56.c)	RR TRUN FINE ERROR input at 3 v output	Vrms				
61 (56.d)	RR TRUN FINE ERROR input at 2 v output	Vrms				
61 (56.e)	RR TRUN FINE ERROR input at 1 v output	Vrms				
61 (56.f)	RR TRUN FINE ERROR input at 0 v output	Vrms				

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FORM 001-15
NEW 9-74-15

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (58. a)	RR TRUN FINE ERROR gain at 5 v output	v/v				
61 (58. b)	RR TRUN FINE ERROR gain at 4 v output	v/v				
61 (58. c)	RR TRUN FINE ERROR gain at 3 v output	v/v				
61 (58. d)	RR TRUN FINE ERROR gain at 2 v output	v/v				
61 (58. e)	RR TRUN FINE ERROR gain at 1 v output	v/v				
61 (58. f)	RR TRUN FINE ERROR gain at 0 v output	v/v				
61 (59)	RR TRUN FINE ERROR average gain	v/v				
61 (60. a)	Difference between gain at 5 v output and average gain	percent			4	
61 (60. b)	Difference between gain at 4 v output and average gain	percent			4	

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101A 001 00
New 1 001 00

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (60. c)	Difference be- tween gain at 3 v output and average gain	percent			4	
61 (60. d)	Difference be- tween gain at 2 v output and average gain	percent			4	
61 (60. e)	Difference be- tween gain at 1 v output and average gain	percent			4	
61 (60. f)	Difference be- tween gain at 0 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
66	IMU HEATER CURRENT output (GG2302X)	vdc	3.90		4.80	
68	IMU HEATER CURRENT ripple	mv p-p			30	
74	IMU BLOWER CURRENT output (GG2303X)	vdc	4.00		4.60	
76	IMU BLOWER CURRENT ripple	mv p-p			250	

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101A 001 00
New 1 001 00

SUBSYSTEM	DESCRIPTION	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
ASSY	Pre-installation acceptance of torque motor and IX sine gimbal channels in flight qualification LEM signal conditioner	2-10-67	2, 3, 4	MIT	2007239 and 6007010
		8-31-67	34486	EA	Schematic 2010125
				EA	IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

Rev.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
A	2-10-67	32979	2, 3, 4	MIT	2007239 and 6007010
B	8-31-67	34486	All	EA	Schematic 2010125
				EA	IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: 1. Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and GG number for each channel tested in JDC.

2. If SCA testing has been interrupted prior to performance of this JDC, perform JDC 18840 before proceeding to re-establish initial turn-on conditions and to insure that power supply outputs are within tolerance.

3. A complete SCA checkout is not required to obtain information to plot calibration curves. If only calibration curves are required, set crossbar to positions 46, 47, and 48 and perform steps 12 through 15; set crossbar to positions 27, 33, and 34 and perform steps 34 through 37; and set crossbar to positions 04 and 05 and perform steps 57 through 60.

VERIFICATION WITH SIDL REQUIRED BEFORE USE

DATE

FOR 4 00147A
CHZ, 3-8-66

SUBSYSTEM ASSY

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
46	IG TORQUE MOTOR	J1-B31	J1-B36	J1-D12	J1-C2	GG2110C
47	MG TORQUE MOTOR	J1-D31	J1-B36	J1-G12	J1-C2	GG2140C
48	OG TORQUE MOTOR	J1-G31	J1-B36	J1-F13	J1-C2	GG2170C
27	OG RSVR SIN	J1-F29	J1-F28	J1-C7	J1-C2	GG2181V
33	IG RSVR SIN	J1-A29	J1-A28	J1-A7	J1-C2	GG2121V
34	MG RSVR SIN	J1-C29	J1-C28	J1-B7	J1-C2	GG2151V
04	RR SHAFT FINE ERROR	J1-F33	J1-A33	J1-G10	J1-B9	GG3311V
05	RR TRUN FINE ERROR	J1-G33	J1-A33	J1-F9	J1-B8	GG3321V
52	IMU HEATER CURRENT	J1-D20	J1-D18	J1-C11	J1-C12	GG2302X
11	IMU BLOWER CURRENT	J1-D19	J1-F16	J1-D11	J1-C12	GG2303X
41	+2.5V BIAS	--	--	--	--	GG1110V
50	+2.5V BIAS	--	--	--	--	GG1111V

NOTE: Insure that NORMAL and VOLTMETER are on.

1. Adjust T50-2 power supply until voltmeter on T50-2 power supply indicates 35 vdc.
2. Set crossbar to 46 (IG TORQUE MOTOR channel).
3. Set DC SCALER to 0.00000.
4. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR OUTPUT.
5. Record dc offset voltage indicated on DVM.
6. Press DC POSITIVE.
7. Adjust DC SCALER until DVM indicates output voltage of 5.000 (± 0.005) vdc.

8. Press VOLTMETER off and SCOPE on.
9. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

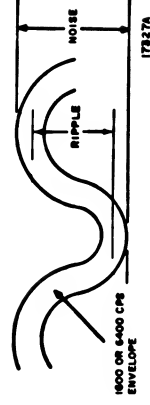


Figure 1. Typical Ripple and Noise Pattern

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10. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
11. Press SCOPE off and VOLTMETER on.
12. Adjust DC SCALER until DVM indicates output voltage listed below. Press DC POSITIVE/DC NEGATIVE to light as shown. Perform steps 13, 14, and 15 for each voltage.

Test	Press	Adjust DC SCALER for Output
a.	DC POSITIVE	5.000 (± 0.005) vdc
b.	DC POSITIVE	4.000 (± 0.005) vdc
c.	DC POSITIVE	3.000 (± 0.005) vdc
d.	DC NEGATIVE	2.000 (± 0.005) vdc
e.	DC NEGATIVE	1.000 (± 0.005) vdc
f.	DC NEGATIVE	0.000 (± 0.005) vdc

13. Record dc output voltage indicated on DVM for tests a through f.
14. Press X BAR INPUT and record dc input voltage indicated on DVM for tests a through f.
15. Press X BAR OUTPUT and return to step 12 until all tests are completed.

16. Compute and record gains a through f using following equation for each gain:
$$\text{GAIN} = \frac{E_{\text{out}} (\text{step 13}) - E_{\text{offset}} (\text{step 5})}{E_{\text{in}} (\text{step 14})}$$

17. Add gains recorded in step 16, divide by 6 to find average gain, and record average.
18. Determine and record minimum and maximum value of gains recorded in step 16 from average gain recorded in step 17 as follows:
 - a. MIN VALUE = average gain (step 17) $\times 0.96$

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32. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
33. Press SCOPE off and VOLTMETER on.
34. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 35, 36, and 37 for each voltage.

Test	X BAR	Channel Tested
a.	47	MG TORQUE MOTOR
b.	48	OG TORQUE MOTOR

35. Record dc output voltage indicated on DVM for tests a through m.
36. Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through m.
37. Press X BAR OUTPUT and return to step 34 until all tests are completed.

Test	800 CPS PHASE GENERATOR Setting	Adjust 3200/800 CPS ADJUST for Output
a.	5 (± 0.1) deg	5.000 (± 0.005) vdc
b.	5 (± 0.1) deg	4.750 (± 0.005) vdc
c.	5 (± 0.1) deg	4.500 (± 0.005) vdc
d.	5 (± 0.1) deg	4.250 (± 0.005) vdc
e.	5 (± 0.1) deg	4.000 (± 0.005) vdc
f.	5 (± 0.1) deg	3.000 (± 0.005) vdc
g.	5 (± 0.1) deg	2.500 (± 0.100) vdc
h.	185 (± 0.1) deg	2.000 (± 0.005) vdc
i.	185 (± 0.1) deg	1.000 (± 0.005) vdc
j.	185 (± 0.1) deg	0.750 (± 0.005) vdc
k.	185 (± 0.1) deg	0.500 (± 0.005) vdc
l.	185 (± 0.1) deg	0.250 (± 0.005) vdc
m.	185 (± 0.1) deg	0.000 (± 0.005) vdc

38. Compute and record gains a, e, f, h, i, and m using following equation for each gain:
$$\text{GAIN} = \frac{E_{\text{out}} (\text{step 35}) - E_{\text{offset}} (\text{step 27})}{E_{\text{in}} (\text{step 36})}$$
39. Add gains recorded in step 38, divide by 6 to find average gain, and record average.
40. Determine and record minimum and maximum value of gains recorded in step 38 from average gain recorded in step 39 as follows:
 - a. MIN VALUE = average gain (step 39) $\times 0.96$
 - b. MAX VALUE = average gain (step 39) $\times 1.04$

41. Set crossbar to next position, listed below, and repeat steps 24 through 40. Continue until all following tests are completed:

Test	X BAR	Channel Tested
a.	33	IG RSVR SIN
b.	34	MG RSVR SIN

42. Set crossbar to 50 (+2.5V BIAS channel). Press PUSH TO ADVANCE and X BAR OUTPUT. Record dc bias voltage indicated on DVM.
43. Press VOLTMETER off and SCOPE on.

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SIGNAL CONDITIONER TORQUE MOTOR
JOB AND IX SINE GIMBAL TESTS - LEM

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SUBSYSTEM

ASSY

NOTE: Turn off Invertron power supply before performing steps 44 and 45. After completion of step 45, turn on Invertron power supply.

44. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

45. Measure peak-to-peak noise, on oscilloscope, as shown in figure 1, and record.

46. Press SCOPE off and VOLTMETER on.

47. Set crossbar to 04 (RR SHAFT FINE ERROR channel) and set 800 CPS PHASE GENERATOR to 0 (± 0.1) degree.

48. Set 3200/800 CPS ADJUST to 0.00000.

49. Press PUSH TO ADVANCE and PUSH TO INITIATE on.

50. Press X BAR OUTPUT and record dc offset voltage indicated on DVM.

51. Record difference between value recorded in step 50 and value recorded in step 42.

52. Adjust 3200/800 CPS ADJUST until DVM indicates 5.000 (± 0.005) vdc.

53. Press VOLTMETER off and SCOPE on.

54. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

55. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.

56. Press SCOPE off and VOLTMETER on.

57. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 58, 59, and 60 for each voltage.

Test 800 CPS PHASE GENERATOR Setting Adjust 3200/800 CPS ADJUST for Output

a. 0 (± 0.1) deg 5.000 (± 0.005) vdc
b. 0 (± 0.1) deg 4.000 (± 0.005) vdc
c. 0 (± 0.1) deg 3.000 (± 0.005) vdc
d. 0 (± 0.1) deg 2.500 (± 0.005) vdc
e. 0 (± 0.1) deg 2.500 (± 0.100) vdc
f. 180 (± 0.1) deg 2.500 (± 0.100) vdc
g. 180 (± 0.1) deg 2.250 (± 0.005) vdc
h. 180 (± 0.1) deg 2.000 (± 0.005) vdc
i. 180 (± 0.1) deg 1.000 (± 0.005) vdc
j. 180 (± 0.1) deg 0.000 (± 0.005) vdc

58. Record dc output voltage indicated on DVM for tests a through j.

59. Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through j.

60. Press X BAR OUTPUT and return to step 57 until all tests are completed.

61. Compute and record gains a, b, c, h, i, and j using following equation for each gain:

$E_{out} \text{ (step 58)} - E_{offset} \text{ (step 50)}$

$GAIN = \frac{E_{in} \text{ (step 59)}}{E_{out} \text{ (step 58)} - E_{offset} \text{ (step 50)}}$

62. Add gains recorded in step 61, divide by 6 to find average gain, and record average.

SIGNAL CONDITIONER TORQUE MOTOR
JOB AND IX SINE GIMBAL TESTS - LEM

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SUBSYSTEM

ASSY

63. Determine and record minimum and maximum value of gains recorded in step 61 from average gain recorded in step 62 as follows:

a. MIN VALUE = average gain (step 62)

$\times 0.96$

b. MAX VALUE = average gain (step 62)

$\times 1.04$

64. Set crossbar to 05 (RR TRUN FINE ERROR channel), set 800 CPS PHASE GENERATOR to 0 (± 0.1) degree, and repeat steps 48 through 63.

65. Set crossbar to 52 (IMU HEATER CURRENT channel).

66. Press X BAR INPUT and PUSH TO ADVANCE.

67. Adjust DC SCALER until DVM indicates 28 (± 0.5) vdc.

68. Press PUSH TO INITIATE on and X BAR OUTPUT.

69. Record dc output voltage indicated on DVM.

70. Press VOLTMETER off and SCOPE on.

71. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

72. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.

73. Press SCOPE off and VOLTMETER on.

74. Set crossbar to 11 (IMU BLOWER CURRENT channel).

75. Press X BAR INPUT and PUSH TO ADVANCE.

76. Adjust 3200/800 CPS ADJUST until DVM indicates 28 (± 0.28) vrms.

77. Press PUSH TO INITIATE on and X BAR OUTPUT.

78. Record dc output voltage indicated on DVM.

79. Press VOLTMETER off and SCOPE on.

80. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

81. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.

82. Press SCOPE off and VOLTMETER on.

NOTE: If SCA testing is to be temporarily discontinued at this time, perform step 83. If shutdown period is to be extensive, perform steps 83 and 84. Press POWER ON off.

84. Turn off all test equipment and set wall power breaker to OFF.

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APOLLO GAN
EQUIPMENT TEST
DATA SHEET 1 OF 23

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC
NO. 18845
REV B
INITIAL TORR 32500

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	REV	SITE / LOCATION
MAJOR GROUND SUPPORT EQUIPMENT		TIME	TOTAL ELAPSED
NAME	SER. NO.	CAL DATE	
NAME	SER. NO.	CAL DATE	
CONDUCTED BY		APPROVED BY	
NAME / AFFILIATION		NAME / AFFILIATION	

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
5	IG TORQUE MTR offset (GG2110C)	vdc	2.425		2.575	
9	IG TORQUE MTR ripple	mv p-p			50	
10	IG TORQUE MTR noise	mv p-p			150	
13.a	IG TORQUE MTR 5 v output	vdc	4.995		5.005	
13.b	IG TORQUE MTR 4 v output	vdc	3.995		4.005	
13.c	IG TORQUE MTR 3 v output	vdc	2.995		3.005	
13.d	IG TORQUE MTR 2 v output	vdc	1.995		2.005	
13.e	IG TORQUE MTR 1 v output	vdc	0.995		1.005	
13.f	IG TORQUE MTR 0 v output	vdc	-0.005		+0.005	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC
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REV B

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
14.a	IG TORQUE MTR input at 5 v output	vdc	0.445		0.555	
14.b	IG TORQUE MTR input at 4 v output	vdc				
14.c	IG TORQUE MTR input at 3 v output	vdc				
14.d	IG TORQUE MTR input at 2 v output	vdc				
14.e	IG TORQUE MTR input at 1 v output	vdc				
14.f	IG TORQUE MTR input at 0 v output	vdc				
16.a	IG TORQUE MTR gain at 5 v output	v/v	step 18.a		step 18.b	
16.b	IG TORQUE MTR gain at 4 v output	v/v	step 18.a		step 18.b	
16.c	IG TORQUE MTR gain at 3 v output	v/v	step 18.a		step 18.b	
16.d	IG TORQUE MTR gain at 2 v output	v/v	step 18.a		step 18.b	
16.e	IG TORQUE MTR gain at 1 v output	v/v	step 18.a		step 18.b	
16.f	IG TORQUE MTR gain at 0 v output	v/v	step 18.a		step 18.b	
17	IG TORQUE MTR average gain	v/v				
18.a	MIN VALUE	v/v				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
19.b (18.b)	MAX VALUE	v/v				
22	+2.5V BIAS (GG1110V)	vdc	2.45		2.55	
27	OG RSVR SIN offset (GG2181V)	vdc	2.465		2.535	
28	Difference between bias and offset	mv			10	
31	OG RSVR SIN ripple	mv p-p			150	
32	OG RSVR sin noise	mv p-p			250	
35.a	OG RSVR SIN 5 v output	vdc	4.995		5.005	
35.b	OG RSVR SIN 4.75 v output	vdc	4.745		4.755	
35.c	OG RSVR SIN 4.5 v output	vdc	4.495		4.505	
35.d	OG RSVR SIN 4.25 v output	vdc	4.245		4.255	
35.e	OG RSVR SIN 4 v output	vdc	3.995		4.005	
35.f	OG RSVR SIN 3 v output	vdc	2.995		3.005	
35.g	OG RSVR SIN 2.5 v output	vdc	2.400		2.600	
35.h	OG RSVR SIN 2 v output	vdc	1.995		2.005	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
35.i	OG RSVR SIN 1 v output	vdc	0.995		1.005	
35.j	OG RSVR SIN 0.75 v output	vdc	0.745		0.755	
35.k	OG RSVR SIN 0.5 v output	vdc	0.495		0.505	
35.l	OG RSVR SIN 0.25 v output	vdc	0.245		0.255	
35.m	OG RSVR SIN 0 v output	vdc	-0.005		+0.005	
36.a	OG RSVR SIN Input at 5 v output	vrms	4.45		5.55	
36.b	OG RSVR SIN Input at 4.75 v output	vrms				
36.c	OG RSVR SIN Input at 4.5 v output	vrms				
36.d	OG RSVR SIN Input at 4.25 v output	vrms				
36.e	OG RSVR SIN Input at 4 v output	vrms				
36.f	OG RSVR SIN Input at 3 v output	vrms				
36.g	OG RSVR SIN Input at 2.5 v output	vrms				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
36.h	OG RSVR SIN Input at 2 v output	vrms				
36.i	OG RSVR SIN Input at 1 v output	vrms				
36.j	OG RSVR SIN Input at 0.75 v output	vrms				
36.k	OG RSVR SIN Input at 0.5 v output	vrms				
36.l	OG RSVR SIN Input at 0.25 v output	vrms				
36.m	OG RSVR SIN Input at 0 v output	vrms				
38.a	OG RSVR SIN gain at 5 v output	v/v	step 40.a		step 40.b	
38.e	OG RSVR SIN gain at 4 v output	v/v	step 40.a		step 40.b	
38.f	OG RSVR SIN gain at 3 v output	v/v	step 40.a		step 40.b	
38.h	OG RSVR SIN gain at 2 v output	v/v	step 40.a		step 40.b	
38.i	OG RSVR SIN gain at 1 v output	v/v	step 40.a		step 40.b	
38.m	OG RSVR SIN gain at 0 v output	v/v	step 40.a		step 40.b	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
39	OG RSVR SIN average gain	v/v				
40.a	MIN VALUE	v/v				
40.b	MAX VALUE	v/v				
41.a (27)	IG RSVR SIN offset (GG2121V)	vdc	2.465		2.535	
41.a (28)	Difference between bias and offset	mv			10	
41.a (31)	IG RSVR SIN ripple	mv p-p			150	
41.a (32)	IG RSVR SIN noise	mv p-p			250	
41.a (35.a)	IG RSVR SIN 5 v output	vdc	4.995		5.005	
41.a (35.b)	IG RSVR SIN 4.75 v output	vdc	4.745		4.755	
41.a (35.c)	IG RSVR SIN 4.5 v output	vdc	4.495		4.505	
41.a (35.d)	IG RSVR SIN 4.25 v output	vdc	4.245		4.255	
41.a (35.e)	IG RSVR SIN 4 v output	vdc	3.995		4.005	
41.a (35.f)	IG RSVR SIN 3 v output	vdc	2.995		3.005	
41.a (35.g)	IG RSVR SIN 2.5 v output	vdc	2.400		2.600	
41.a (35.h)	IG RSVR SIN 2 v output	vdc	1.995		2.005	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (35.i)	IG RSVR SIN 1 v output	vdc	0.995		1.005	
41.a (35.j)	IG RSVR SIN 0.75 v output	vdc	0.745		0.755	
41.a (35.k)	IG RSVR SIN 0.5 v output	vdc	0.495		0.505	
41.a (35.l)	IG RSVR SIN 0.25 v output	vdc	0.245		0.255	
41.a (35.m)	IG RSVR SIN 0 v output	vdc	-0.005		+0.005	
41.a (36.a)	IG RSVR SIN input at 5 v output	vrms	4.45		5.55	
41.a (36.b)	IG RSVR SIN input at 4.75 v output	vrms				
41.a (36.c)	IG RSVR SIN input at 4.5 v output	vrms				
41.a (36.d)	IG RSVR SIN input at 4.25 v output	vrms				
41.a (36.e)	IG RSVR SIN input at 4 v output	vrms				
41.a (36.f)	IG RSVR SIN input at 3 v output	vrms				
41.a (36.g)	IG RSVR SIN input at 2.5 v output	vrms				
41.a (36.h)	IG RSVR SIN input at 2 v output	vrms				
41.a (36.i)	IG RSVR SIN input at 1 v output	vrms				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (36.j)	IG RSVR SIN input at 0.75 v output	vrms				
41.a (36.k)	IG RSVR SIN input at 0.5 v output	vrms				
41.a (36.l)	IG RSVR SIN input at 0.25 v output	vrms				
41.a (36.m)	IG RSVR SIN input at 0 v output	vrms				
41.a (38.a)	IG RSVR SIN gain at 5 v output	v/v	step 41.a (40.a)		step 41.a (40.b)	
41.a (38.e)	IG RSVR SIN gain at 4 v output	v/v	step 41.a (40.a)		step 41.a (40.b)	
41.a (38.f)	IG RSVR SIN gain at 3 v output	v/v	step 41.a (40.a)		step 41.a (40.b)	
41.a (38.h)	IG RSVR SIN gain at 2 v output	v/v	step 41.a (40.a)		step 41.a (40.b)	
41.a (38.i)	IG RSVR SIN gain at 1 v output	v/v	step 41.a (40.a)		step 41.a (40.b)	
41.a (38.m)	IG RSVR SIN gain at 0 v output	v/v	step 41.a (40.a)		step 41.a (40.b)	
41.a (39)	IG RSVR SIN average gain	v/v				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (40.a)	MIN VALUE	v/v				
41.a (40.b)	MAX VALUE	v/v				
41.b (27)	MG RSVR SIN offset (GG2151V)	vdc	2.465		2.535	
41.b (28)	Difference between bias and offset	mv			10	
41.b (31)	MG RSVR SIN ripple	mv P-P			150	
41.b (32)	MG RSVR SIN noise	mv P-P			250	
41.b (35.a)	MG RSVR SIN 5 v output	vdc	4.995		5.005	
41.b (35.b)	MG RSVR SIN 4.75 v output	vdc	4.745		4.755	
41.b (35.c)	MG RSVR SIN 4.5 v output	vdc	4.495		4.505	
41.b (35.d)	MG RSVR SIN 4.25 v output	vdc	4.245		4.255	
41.b (35.e)	MG RSVR SIN 4 v output	vdc	3.995		4.005	
41.b (35.f)	MG RSVR SIN 3 v output	vdc	2.995		3.005	
41.b (35.g)	MG RSVR SIN 2.5 v output	vdc	2.400		2.600	
41.b (35.h)	MG RSVR SIN 2 v output	vdc	1.995		2.005	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (35.i)	MG RSVR SIN 1 v output	vdc	0.995		1.005	
41.b (35.j)	MG RSVR SIN 0.75 v output	vdc	0.745		0.755	
41.b (35.k)	MG RSVR SIN 0.5 v output	vdc	0.495		0.505	
41.b (35.l)	MG RSVR SIN 0.25 v output	vdc	0.245		0.255	
41.b (35.m)	MG RSVR SIN 0 v output	vdc	-0.005		+0.005	
41.b (36.a)	MG RSVR SIN input at 5 v output	vrms	4.45		5.55	
41.b (36.b)	MG RSVR SIN input at 4.75 v output	vrms				
41.b (36.c)	MG RSVR SIN input at 4.5 v output	vrms				
41.b (36.d)	MG RSVR SIN input at 4.25 v output	vrms				
41.b (36.e)	MG RSVR SIN input at 4 v output	vrms				
41.b (36.f)	MG RSVR SIN input at 3 v output	vrms				
41.b (36.g)	MG RSVR SIN input at 2.5 v output	vrms				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (36.h)	MG RSVR SIN Input at 2 v output	v rms				
41.b (36.i)	MG RSVR SIN Input at 1 v output	v rms				
41.b (36.j)	MG RSVR SIN Input at 0.75 v output	v rms				
41.b (36.k)	MG RSVR SIN Input at 0.5 v output	v rms				
41.b (36.l)	MG RSVR SIN Input at 0.25 v output	v rms				
41.b (36.m)	MG RSVR SIN Input at 0 v output	v rms				
41.b (38.a)	MG RSVR SIN gain at 5 v output	v/v	step 41.b (40.a)		step 41.b (40.b)	
41.b (38.e)	MG RSVR SIN gain at 4 v output	v/v	step 41.b (40.a)		step 41.b (40.b)	
41.b (38.f)	MG RSVR SIN gain at 3 v output	v/v	step 41.b (40.a)		step 41.b (40.b)	
41.b (38.h)	MG RSVR SIN gain at 2 v output	v/v	step 41.b (40.a)		step 41.b (40.b)	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (38.i)	MG RSVR SIN gain at 1 v output	v/v	step 41.b (40.a)		step 41.b (40.b)	
41.b (38.m)	MG RSVR SIN gain at 0 v output	v/v	step 41.b (40.a)		step 41.b (40.b)	
41.b (39)	MG RSVR SIN average gain	v/v				
41.b (40.a)	MIN VALUE	v/v				
41.b (40.b)	MAX VALUE	v/v				
42	+2.5V BIAS (GG1111V)	vdc	2.45		2.55	
44	+2.5V BIAS noise	mv p-p				
45	+2.5V BIAS ripple	mv p-p				
50	RR SHAF T FINE ERROR offset (GG3311V)	vdc	2.465		2.535	
51	Difference between bias and offset	mv			10	
54	RR SHAF T FINE ERROR ripple	mv p-p			100	
55	RR SHAF T FINE ERROR noise	mv p-p			100	
58.a	RR SHAF T FINE ERROR 5 v output	vdc	4.995		5.005	
58.b	RR SHAF T FINE ERROR 4 v output	vdc	3.995		4.005	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
58.c	RR SHAF T FINE ERROR 3 v output	vdc	2.995		3.005	
58.d	RR SHAF T FINE ERROR 2.75 v output	vdc	2.745		2.755	
58.e	RR SHAF T FINE ERROR 2.5 v output	vdc	2.400		2.600	
58.f	RR SHAF T FINE ERROR 2.5 v output	vdc	2.400		2.600	
58.g	RR SHAF T FINE ERROR 2.25 v output	vdc	2.245		2.255	
58.h	RR SHAF T FINE ERROR 2 v output	vdc	1.995		2.005	
58.i	RR SHAF T FINE ERROR 1 v output	vdc	0.995		1.005	
58.j	RR SHAF T FINE ERROR 0 v output	vdc	-0.005		+0.005	
59.a	RR SHAF T FINE ERROR input at 5 v output	v rms	1.08		1.32	
59.b	RR SHAF T FINE ERROR input at 4 v output	v rms				
59.c	RR SHAF T FINE ERROR input at 3 v output	v rms				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
59.d	RR SHAF T FINE ERROR input at 2.75 v output	v rms				
59.e	RR SHAF T FINE ERROR input at 2.5 v output	v rms				
59.f	RR SHAF T FINE ERROR input at 2.5 v output	v rms				
59.g	RR SHAF T FINE ERROR input at 2.25 v output	v rms				
59.h	RR SHAF T FINE ERROR input at 2 v output	v rms				
59.i	RR SHAF T FINE ERROR input at 1 v output	v rms				
59.j	RR SHAF T FINE ERROR input at 0 v output	v rms				
61.a	RR SHAF T FINE ERROR gain at 5 v output	v/v	step 63.a		step 63.b	
61.b	RR SHAF T FINE ERROR gain at 4 v output	v/v	step 63.a		step 63.b	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
61.c	RR SHAFT FINE ERROR gain at 3 v output	v/v	step 63. a		step 63. b	
61.h	RR SHAFT FINE ERROR gain at 2 v output	v/v	step 63. a		step 63. b	
61.i	RR SHAFT FINE ERROR gain at 1 v output	v/v	step 63. a		step 63. b	
61.j	RR SHAFT FINE ERROR gain at 0 v output	v/v	step 63. a		step 63. b	
62	RR SHAFT FINE ERROR average gain	v/v				
63.a	MIN VALUE	v/v				
63.b	MAX VALUE	v/v				
64 (50)	RR TRUN FINE ERROR offset (GG332IV)	vdc	2.465		2.535	
64 (51)	Difference between bias and offset	mv			10	
64 (54)	RR TRUN FINE ERROR ripple	mv p-p			100	
64 (55)	RR TRUN FINE ERROR noise	mv p-p			100	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
64 (58.a)	RR TRUN FINE ERROR 5 v output	vdc	4.995		5.005	
64 (58.b)	RR TRUN FINE ERROR 4 v output	vdc	3.995		4.005	
64 (58.c)	RR TRUN FINE ERROR 3 v output	vdc	2.995		3.005	
64 (58.d)	RR TRUN FINE ERROR 2.75 v output	vdc	2.745		2.755	
64 (58.e)	RR TRUN FINE ERROR 2.5 v output	vdc	2.400		2.600	
64 (58.f)	RR TRUN FINE ERROR 2.5 v output	vdc	2.400		2.600	
64 (58.g)	RR TRUN FINE ERROR 2.25 v output	vdc	2.245		2.255	
64 (58.h)	RR TRUN FINE ERROR 2 v output	vdc	1.995		2.005	
64 (58.i)	RR TRUN FINE ERROR 1 v output	vdc	0.995		1.005	
64 (58.j)	RR TRUN FINE ERROR 0 v output	vdc	-0.005		+0.005	
64 (59.a)	RR TRUN FINE ERROR input at 5 v output	v rms	1.08		1.32	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
64 (59.b)	RR TRUN FINE ERROR input at 4 v output	v rms				
64 (59.c)	RR TRUN FINE ERROR input at 3 v output	v rms				
64 (59.d)	RR TRUN FINE ERROR input at 2.75 v output	v rms				
64 (59.e)	RR TRUN FINE ERROR input at 2.5 v output	v rms				
64 (59.f)	RR TRUN FINE ERROR input at 2.5 v output	v rms				
64 (59.g)	RR TRUN FINE ERROR input at 2.25 v output	v rms				
64 (59.h)	RR TRUN FINE ERROR input at 2 v output	v rms				
64 (59.i)	RR TRUN FINE ERROR input at 1 v output	v rms				
64 (59.j)	RR TRUN FINE ERROR input at 0 v output	v rms				

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
64 (61.a)	RR TRUN FINE ERROR gain at 5 v output	v/v	step 64 (63. a)		step 64 (63. b)	
64 (61.b)	RR TRUN FINE ERROR gain at 4 v output	v/v	step 64 (63. a)		step 64 (63. b)	
64 (61.c)	RR TRUN FINE ERROR gain at 3 v output	v/v	step 64 (63. a)		step 64 (63. b)	
64 (61.h)	RR TRUN FINE ERROR gain at 2 v output	v/v	step 64 (63. a)		step 64 (63. b)	
64 (61.i)	RR TRUN FINE ERROR gain at 1 v output	v/v	step 64 (63. a)		step 64 (63. b)	
64 (61.j)	RR TRUN FINE ERROR gain at 0 v output	v/v	step 64 (63. a)		step 64 (63. b)	
64 (62)	RR TRUN FINE ERROR average gain	v/v				
64 (63.a)	MIN VALUE	v/v				
64 (63.b)	MAX VALUE	v/v				
69	IMU HEATER CURRENT output (GG3302X)	vdc	3.90		4.80	

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JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
71	IMU HEATER CURRENT ripple	mv p-p			30	
72	IMU HEATER CURRENT noise	mv p-p			50	
78	IMU BLOWER CURRENT output (GG2303X)	vdc	4.00		4.60	
80	IMU BLOWER CURRENT ripple	mv p-p			250	
81	IMU BLOWER CURRENT noise	mv p-p			500	

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SUBSYSTEM
DESCRIPTION Pre-Installation acceptance of torque motor and 1X sine gimbal channels in flight qualification LEM signal conditioner.

Rev. Let.	Date	TDR NO.	PAGES REVISED	APPROVAL	REFERENCES
			JDC	MIT NASA	Procurement spec 2007231
			D.S.		
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting.

signal name, input pins, output pins, and GG number for each channel tested in JDC.

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
46	IG TORQUE MOTOR	J1-B31	J1-D18	J1-D12	J1-F12	GG2110C
47	MG TORQUE MOTOR	J1-D31	J1-D18	J1-G12	J1-F12	GG2140C
48	OG TORQUE MOTOR	J1-G31	J1-D18	J1-F13	J1-F12	GG2170C
27	OG RSVR SIN	J1-F29	J1-F28	J1-C7	J1-B6	GG2181V
33	IG RSVR SIN	J1-A29	J1-A28	J1-B7	J1-B6	GG2121V
34	MG RSVR SIN	J1-C29	J1-C28	J1-A7	J1-B6	GG2151V
04	RR SHAFT FINE ERROR	J1-F33	J1-A33	J1-G10	J1-F10	GG3311V
05	RR TRUN FINE ERROR	J1-G33	J1-A33	J1-F9	J1-F10	GG3321V
52	IMU HEATER CURRENT	J1-D20	J1-D18	J1-C11	J1-C12	GG2302X
11	IMU BLOWER CURRENT	J1-D19	J1-F16	J1-D11	J1-C12	GG2303X

DATE

SUBSYSTEM

21. Measure and record dc bias voltage indicated on DVM.
22. Set crossbar to 27 (OG RSVR SIN channel).
23. Set 800 CPS PHASE GENERATOR to 5 (± 0.1) degrees.
24. Set 3200/800 CPS ADJUST to 0.00000.
25. Press PUSH TO ADVANCE and PUSH TO INITIATE on.
26. Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
27. Record difference between value recorded in step 26 and value recorded in step 21.
28. Algebraically add value recorded in step 26 to +2.5 and record.
29. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 28.
30. Press X BAR INPUT and record ac input voltage indicated on DVM.
31. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
32. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
33. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
34. Press SCOPE off and VOLTMETER on.
35. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 36 and 37 for each voltage.

Test
a. 0 (± 0.1) deg 5.000 (± 0.1) vdc
b. 0 (± 0.1) deg 4.000 (± 0.1) vdc
c. 0 (± 0.1) deg 3.000 (± 0.1) vdc
d. 180 (± 0.1) deg 2.000 (± 0.1) vdc
e. 180 (± 0.1) deg 1.000 (± 0.1) vdc
f. 180 (± 0.1) deg 0.000 (± 0.1) vdc

Test
a. 33 IG RSVR SIN
b. 34 MG RSVR SIN
42. Set crossbar to 04 (RR SHAFT FINE ERROR channel).

DATE

SUBSYSTEM

1. Adjust T50-2 power supply until voltmeter on T50-2 indicates 35 vdc.
2. Set crossbar to 46 (IG TORQUE MOTOR channel).
3. Set DC SCALER to 0.00000.
4. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR OUTPUT.
5. Measure and record dc offset voltage indicated on DVM.
6. Press DC POSITIVE.
7. Adjust DC SCALER until DVM indicates output voltage of 5.000 (± 0.005) vdc.
8. Press VOLTMETER off and SCOPE on.
9. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

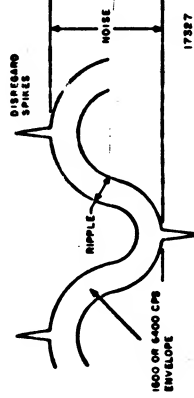


Figure 1. Typical Ripple and Noise Pattern
10. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
11. Press SCOPE off and VOLTMETER on.
12. Adjust DC SCALER until DVM indicates output voltage listed below. Press DC POSITIVE/DC NEGATIVE to light as shown. Perform steps 13 and 14 for each voltage.

DATE

SUBSYSTEM

43. Set 800 CPS PHASE GENERATOR to 0 (± 0.1) degree.
44. Set 3200/800 CPS ADJUST to 0.00000.
45. Press PUSH TO ADVANCE and PUSH TO INITIATE on.
46. Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
47. Record difference between value recorded in step 46 and value recorded in step 21.
48. Algebraically add value recorded in step 46 to +2.5 and record.
49. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 48.
50. Press X BAR INPUT and record ac input voltage indicated on DVM.
51. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
52. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
53. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
54. Press SCOPE off and VOLTMETER on.
55. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 56 and 57 for each voltage.

Test
a. 0 (± 0.1) deg 5.000 (± 0.1) vdc
b. 0 (± 0.1) deg 4.000 (± 0.1) vdc
c. 0 (± 0.1) deg 3.000 (± 0.1) vdc
d. 180 (± 0.1) deg 2.000 (± 0.1) vdc
e. 180 (± 0.1) deg 1.000 (± 0.1) vdc
f. 180 (± 0.1) deg 0.000 (± 0.1) vdc

DATE

SUBSYSTEM ASSY

DESCRIPTION Pre-installation acceptance of torque motor and 1X sine gimbal channels in flight qualification LEM signal conditioner.

Rev.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
			JDC	MIT NASA	Procurement spec 2007229
			D.S.		
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting.

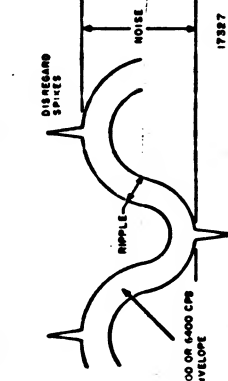
Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
46	IG TORQUE MOTOR	J1-B31	J1-D18	J1-D12	J1-F12	GG2110C
47	MG TORQUE MOTOR	J1-D31	J1-D18	J1-G12	J1-F12	GG2140C
48	OG TORQUE MOTOR	J1-G31	J1-D18	J1-F13	J1-F12	GG2170C
27	OG RSVR SIN	J1-F29	J1-F28	J1-C7	J1-B6	GG2181V
33	IG RSVR SIN	J1-A29	J1-A28	J1-B7	J1-B6	GG2121V
34	MG RSVR SIN	J1-C29	J1-C28	J1-A7	J1-B6	GG2151V
04	RR SHAFT FINE ERROR	J1-F33	J1-A33	J1-G10	J1-F10	GG3311V
05	RR TRUN FINE ERROR	J1-G33	J1-A33	J1-F9	J1-F10	GG3321V
52	IMU HEATER CURRENT	J1-D20	J1-D18	J1-C11	J1-C12	GG2302X
11	IMU BLOWER CURRENT	J1-D19	J1-F16	J1-D11	J1-C12	GG2303X

DATE

SUBSYSTEM ASSY

- Adjust T50-2 power supply until voltmeter on T50-2 indicates 36 vdc.
- Set crossbar to 46 (IG TORQUE MOTOR channel).
- Set DC SCALER to 0.00000.
- Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR OUTPUT.
- Measure and record dc offset voltage indicated on DVM.
- Press DC POSITIVE.
- Adjust DC SCALER until DVM indicates output voltage of 5.000 (± 0.005) vdc.
- Press VOLTMETER off and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.



- Figure 1. Typical Ripple and Noise Pattern
- Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
 - Press SCOPE off and VOLTMETER on.
 - Adjust DC SCALER until DVM indicates output voltage listed below. Press DC POSITIVE/DC NEGATIVE to light as shown. Perform steps 13 and 14 for each voltage.

DATE
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SUBSYSTEM ASSY

- Measure and record dc bias voltage indicated on DVM.
- Set crossbar to 27 (OG RSVR SIN channel).
- Set 800 CPS PHASE GENERATOR to 5 (± 0.1) degrees.
- Set 3200/800 CPS ADJUST to 0.00000.
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.
- Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
- Record difference between value recorded in step 26 and value recorded in step 21.
- Algebraically add value recorded in step 26 to +2.5 and record.
- Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 28.
- Press X BAR INPUT and record ac input voltage indicated on DVM.
- Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
- Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
- Press SCOPE off and VOLTMETER on.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 36 and 37 for each voltage.

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SUBSYSTEM ASSY

- Set 800 CPS PHASE GENERATOR to 0 (± 0.1) degree.
- Set 3200/800 CPS ADJUST to 0.00000.
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.
- Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
- Record difference between value recorded in step 46 and value recorded in step 21.
- Algebraically add value recorded in step 46 to +2.5 and record.
- Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 48.
- Press X BAR INPUT and record ac input voltage indicated on DVM.
- Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
- Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
- Press SCOPE off and VOLTMETER on.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 56 and 57 for each voltage.

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70. Set crossover to 11 (IMU BLOWER CURRENT channel).
71. Press X BAR INPUT and PUSH TO ADVANCE.
72. Adjust 3200/800 CPS ADJUST until DVM indicates 28 (±0.28) v rms.
73. Press PUSH TO INITIATE on and X BAR OUTPUT.
74. Measure and record dc output voltage indicated on DVM.
75. Press VOLTMETER off and SCOPE on.
76. Measure peak-to-peak ripple voltage on oscilloscope and record.
77. Press SCOPE off and VOLTMETER on.

DATE _____
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ASSEMBLY UNDER TEST

TEST HISTORY

TITLE _____ DATE _____ START _____ END _____ SITE / LOCATION _____
SER. NO. _____ DWG. _____ REV. _____ TIME _____ START _____ END _____ TOTAL ELAPSED _____

MAJOR GROUND SUPPORT EQUIPMENT

NAME _____ SER. NO. _____ CAL DATE _____
NAME _____ SER. NO. _____ CAL DATE _____

CONDUCTED BY _____ NAME/AFFILIATION _____ APPROVED BY _____ NAME/AFFILIATION _____

JDC ITEM NO. _____ PARAMETER _____ UNITS _____ MIN VALUE _____ RECORDED VALUE _____ MAX VALUE _____ REJ ACC _____

NOTE

Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. GG number is listed in first data sheet entry for each channel. Figure 1 is provided as an aid during performance of ripple and noise measurements.

5 IG TORQUE MTR vdc 2.425 2.575

offset (GG2110C)

DATE _____

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
9	IG TORQUE MTR ripple	mv p-p			50	
10	IG TORQUE MTR noise	mv p-p			150	
13.a	IG TORQUE MTR input at 5 v output	vdc	0.445		0.555	
13.b	IG TORQUE MTR input at 4 v output	vdc				
13.c	IG TORQUE MTR input at 3 v output	vdc				
13.d	IG TORQUE MTR input at 2 v output	vdc				
13.e	IG TORQUE MTR input at 1 v output	vdc				
13.f	IG TORQUE MTR input at 0 v output	vdc				

DATE _____

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
15.a	IG TORQUE MTR gain at 5 v output	v/v				
15.b	IG TORQUE MTR gain at 4 v output	v/v				
15.c	IG TORQUE MTR gain at 3 v output	v/v				
15.d	IG TORQUE MTR gain at 2 v output	v/v				
15.e	IG TORQUE MTR gain at 1 v output	v/v				
15.f	IG TORQUE MTR gain at 0 v output	v/v				
16	IG TORQUE MTR average gain	v/v				
17.a	Difference between gain at 5 v output and average gain	percent			4	
17.b	Difference between gain at 4 v output and average gain	percent			4	

DATE _____

SUBSYSTEM

ASSY

70. Set crossbar to 11 (IMU BLOWER CURRENT channel).
71. Press X BAR INPUT and PUSH TO ADVANCE.
72. Adjust 3200/800 CFS ADJUST until DVM indicates 28 (± 0.28) VRMS.
73. Press PUSH TO INITIATE on and X BAR OUTPUT.
74. Measure and record dc output voltage indicated on DVM.
75. Press VOLT METER off and SCOPE on.
76. Measure peak-to-peak ripple voltage on oscilloscope and record.
77. Press SCOPE off and VOLT METER on.

DATE

FORM 0014
Chg. 7-23-65

APOLLO G&N
EQUIPMENT TEST
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JDC
NO. 18845
REV. _____
INITIAL TDRR 31500

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

ASSEMBLY UNDER TEST

TITLE _____ DATE _____ START _____ END _____ SITE / LOCATION _____
SER. NO. _____ DWG. _____ REV. _____ TIME _____ START _____ END _____ TOTAL ELAPSED _____

MAK'R GROUND SUPPORT EQUIPMENT

NAME _____ SER. NO. _____ CAL DATE _____
NAME _____ SER. NO. _____ CAL DATE _____

CONDUCTED BY _____ NAME/AFFILIATION _____ APPROVED BY _____ NAME/AFFILIATION _____

JDC ITEM NO. _____ PARAMETER _____ UNITS _____ MIN VALUE _____ RECORDED VALUE _____ MAX VALUE _____ REJ ACC _____

NOTE

Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. GG number is listed in first data sheet entry for each channel. Figure 1 is provided as an aid during performance of ripple and noise measurements.

5 IG TORQUE MTR vdc 2.425 2.575

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 2 OF 26

JDC
NO. 18845
REV. _____

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
9	IG TORQUE MTR ripple	mv p-p			50	
10	IG TORQUE MTR noise	mv p-p			150	
13.a	IG TORQUE MTR input at 5 v output	vdc	0.445		0.555	
13.b	IG TORQUE MTR input at 4 v output	vdc				
13.c	IG TORQUE MTR input at 3 v output	vdc				
13.d	IG TORQUE MTR input at 2 v output	vdc				
13.e	IG TORQUE MTR input at 1 v output	vdc				
13.f	IG TORQUE MTR input at 0 v output	vdc				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 3 OF 26

JDC
NO. 18845
REV. _____

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
15.a	IG TORQUE MTR gain at 5 v output	v/v				
15.b	IG TORQUE MTR gain at 4 v output	v/v				
15.c	IG TORQUE MTR gain at 3 v output	v/v				
15.d	IG TORQUE MTR gain at 2 v output	v/v				
15.e	IG TORQUE MTR gain at 1 v output	v/v				
15.f	IG TORQUE MTR gain at 0 v output	v/v				
16	IG TORQUE MTR average gain	v/v				
17.a	Difference between gain at 5 v output and average gain	percent			4	
17.b	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 4 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
17.c	Difference be- tween gain at 3 v output and average gain	percent			4	
17.d	Difference be- tween gain at 2 v output and average gain	percent			4	
17.e	Difference be- tween gain at 1 v output and average gain	percent			4	
17.f	Difference be- tween gain at 0 v output and average gain	percent			4	
18.a (5)	MG TORQUE MTR offset (GC2140C)	vdc	2.425		2.575	

DATE

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EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
18.a (9)	MG TORQUE MTR ripple	mv p-p			50	
18.a (10)	MG TORQUE MTR noise	mv p-p			150	
18.a (13.a)	MG TORQUE MTR input at 5 v output	vdc	0.445		0.555	
18.a (13.b)	MG TORQUE MTR input at 4 v output	vdc				
18.a (13.c)	MG TORQUE MTR input at 3 v output	vdc				
18.a (13.d)	MG TORQUE MTR input at 2 v output	vdc				
18.a (13.e)	MG TORQUE MTR input at 1 v output	vdc				
18.a (13.f)	MG TORQUE MTR input at 0 v output	vdc				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 6 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
18.a (15.a)	MG TORQUE MTR gain at 5 v output	v/v				
18.a (15.b)	MG TORQUE MTR gain at 4 v output	v/v				
18.a (15.c)	MG TORQUE MTR gain at 3 v output	v/v				
18.a (15.d)	MG TORQUE MTR gain at 2 v output	v/v				
18.a (15.e)	MG TORQUE MTR gain at 1 v output	v/v				
18.a (15.f)	MG TORQUE MTR gain at 0 v output	v/v				
18.a (16)	MG TORQUE MTR average gain	v/v				
18.a (17.a)	Difference between gain at 5 v output and average gain	percent			4	
18.a (17.b)	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 7 OF 26

JDC
NO. 18845
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
18.a (17.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
18.a (17.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
18.a (17.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
18.a (17.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
18.b (5)	OG TORQUE MTR offset (GC2170C)	vdc	2.425		2.575	

DATE

APOLLO 68N
EQUIPMENT TEST
DATA SHEET 4 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
17.c	Difference be- tween gain at 3 v output and average gain	percent			4	
17.d	Difference be- tween gain at 2 v output and average gain	percent			4	
17.e	Difference be- tween gain at 1 v output and average gain	percent			4	
17.f	Difference be- tween gain at 0 v output and average gain	percent			4	
18.a (5)	MG TORQUE MTR offset (GC2140C)	vdc	2.425		2.575	

DATE

APOLLO 68N
EQUIPMENT TEST
DATA SHEET 5 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (9)	MG TORQUE MTR ripple	mv p-p			50	
18.a (10)	MG TORQUE MTR noise	mv p-p			150	
18.a (13.a)	MG TORQUE MTR Input at 5 v output	vdc	0.445		0.555	
18.a (13.b)	MG TORQUE MTR Input at 4 v output	vdc				
18.a (13.c)	MG TORQUE MTR Input at 3 v output	vdc				
18.a (13.d)	MG TORQUE MTR Input at 2 v output	vdc				
18.a (13.e)	MG TORQUE MTR Input at 1 v output	vdc				
18.a (13.f)	MG TORQUE MTR Input at 0 v output	vdc				

DATE

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (15.a)	MG TORQUE MTR gain at 5 v output	v/v				
18.a (15.b)	MG TORQUE MTR gain at 4 v output	v/v				
18.a (15.c)	MG TORQUE MTR gain at 3 v output	v/v				
18.a (15.d)	MG TORQUE MTR gain at 2 v output	v/v				
18.a (15.e)	MG TORQUE MTR gain at 1 v output	v/v				
18.a (15.f)	MG TORQUE MTR gain at 0 v output	v/v				
18.a (16)	MG TORQUE MTR average gain	v/v				
18.a (17.a)	Difference between gain at 5 v output and average gain	percent			4	
18.a (17.b)	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO 68N
EQUIPMENT TEST
DATA SHEET 7 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (17.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
18.a (17.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
18.a (17.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
18.a (17.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
18.b (5)	OG TORQUE MTR offset (GC2170C)	vdc	2.425		2.575	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 8 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ /CC
18.b (9)	OG TORQUE MTR ripple	mv p-p			50	
18.b (10)	OG TORQUE MTR noise	mv p-p			150	
18.b (13.a)	OG TORQUE MTR Input at 5 v output	vdc	0.801		0.999	
18.b (13.b)	OG TORQUE MTR Input at 4 v output	vdc				
18.b (13.c)	OG TORQUE MTR Input at 3 v output	vdc				
18.b (13.d)	OG TORQUE MTR Input at 2 v output	vdc				
18.b (13.e)	OG TORQUE MTR Input at 1 v output	vdc				
18.b (18.f)	OG TORQUE MTR Input at 0 v output	vdc				

DATE

APOLLO G&N
EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (15.a)	OG TORQUE MTR gain at 5 v output	v/v				
18.b (15.b)	OG TORQUE MTR gain at 4 v output	v/v				
18.b (15.c)	OG TORQUE MTR gain at 3 v output	v/v				
18.b (15.d)	OG TORQUE MTR gain at 2 v output	v/v				
18.b (15.e)	OG TORQUE MTR gain at 1 v output	v/v				
18.b (15.f)	OG TORQUE MTR gain at 0 v output	v/v				
18.b (16)	OG TORQUE MTR average gain	v/v				
18.b (17.a)	Difference between gain at 5 v output and average gain	percent			4	
18.b (17.b)	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
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JDC
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REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (17.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
18.b (17.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
18.b (17.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
18.b (17.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
21	Bias	vdc	2.475		2.525	
26	OG RSVR SIN offset (OG 2181V)	vdc				

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JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
27	Difference between bias and offset	mv			10	
28	Algebraically add +2.5 to offset	vdc				
30	OG RSVR SIN Input	v rms	4.45		5.55	
32	OG RSVR SIN ripple	mv p-p			150	
33	OG RSVR SIN noise	mv p-p			250	
36.a	OG RSVR SIN input at 5 v output	v rms				
36.b	OG RSVR SIN input at 4 v output	v rms				
36.c	OG RSVR SIN input at 3 v output	v rms				
36.d	OG RSVR SIN input at 2 v output	v rms				
36.e	OG RSVR SIN input at 1 v output	v rms				
36.f	OG RSVR SIN input at 0 v output	v rms				

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JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / CC
18.b (9)	OG TORQUE MTR ripple	mv p-p			50	
18.b (10)	OG TORQUE MTR noise	mv p-p			150	
18.b (13.a)	OG TORQUE MTR Input at 5 v output	vdc	0.801		0.999	
18.b (13.b)	OG TORQUE MTR Input at 4 v output	vdc				
18.b (13.c)	OG TORQUE MTR Input at 3 v output	vdc				
18.b (13.d)	OG TORQUE MTR Input at 2 v output	vdc				
18.b (13.e)	OG TORQUE MTR Input at 1 v output	vdc				
18.b (18.f)	OG TORQUE MTR Input at 0 v output	vdc				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (15.a)	OG TORQUE MTR gain at 5 v output	v/v				
18.b (15.b)	OG TORQUE MTR gain at 4 v output	v/v				
18.b (15.c)	OG TORQUE MTR gain at 3 v output	v/v				
18.b (15.d)	OG TORQUE MTR gain at 2 v output	v/v				
18.b (15.e)	OG TORQUE MTR gain at 1 v output	v/v				
18.b (15.f)	OG TORQUE MTR gain at 0 v output	v/v				
18.b (16)	OG TORQUE MTR average gain	v/v				
18.b (17.a)	Difference between gain at 5 v output and average gain	percent			4	
18.b (17.b)	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (17.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
18.b (17.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
18.b (17.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
18.b (17.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
21	Bias	vdc	2.475		2.525	
26	OG RSVR SIN offset (GG 2181V)	vdc				

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JDC
NO. 18845
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
27	Difference between bias and offset	mv			10	
28	Algebraically add +2.5 to offset	vdc				
30	OG RSVR SIN Input	v rms	4.45		5.55	
32	OG RSVR SIN ripple	mv p-p			150	
33	OG RSVR SIN noise	mv p-p			250	
36.a	OG RSVR SIN input at 5 v output	v rms				
36.b	OG RSVR SIN input at 4 v output	v rms				
36.c	OG RSVR SIN input at 3 v output	v rms				
36.d	OG RSVR SIN input at 2 v output	v rms				
36.e	OG RSVR SIN input at 1 v output	v rms				
36.f	OG RSVR SIN input at 0 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
38.a	OG RSVR SIN gain at 5 v output	v/v				
38.b	OG RSVR SIN gain at 4 v output	v/v				
38.c	OG RSVR SIN gain at 3 v output	v/v				
38.d	OG RSVR SIN gain at 2 v output	v/v				
38.e	OG RSVR SIN gain at 1 v output	v/v				
38.f	OG RSVR SIN gain at 0 v output	v/v				
39	OG RSVR SIN average gain	v/v				
40.a	Difference between gain at 5 v output and average gain	percent			4	
40.b	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
40.c	Difference be- tween gain at 3 v output and average gain	percent			4	
40.d	Difference be- tween gain at 2 v output and average gain	percent			4	
40.e	Difference be- tween gain at 1 v output and average gain	percent			4	
40.f	Difference be- tween gain at 0 v output and average gain	percent			4	
41.a (26)	IG RSVR SIN offset (GC212 1V)	vdc				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (27)	Difference between bias and offset	mV			10	
41.a (28)	Algebraically add +2.5 to offset	vdc				
41.a (30)	IG RSVR SIN input	v rms	4.45		5.55	
41.a (32)	IG RSVR SIN ripple	mV p-p			150	
41.a (33)	IG RSVR SIN noise	mV p-p			250	
41.a (36.a)	IG RSVR SIN input at 5 v output	v rms				
41.a (36.b)	IG RSVR SIN input at 4 v output	v rms				
41.a (36.c)	IG RSVR SIN input at 3 v output	v rms				
41.a (36.d)	IG RSVR SIN input at 2 v output	v rms				
41.a (36.e)	IG RSVR SIN input at 1 v output	v rms				
41.a (36.f)	IG RSVR SIN input at 0 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (38.a)	IG RSVR SIN gain at 5 v output	v/v				
41.a (38.b)	IG RSVR SIN gain at 4 v output	v/v				
41.a (38.c)	IG RSVR SIN gain at 3 v output	v/v				
41.a (38.d)	IG RSVR SIN gain at 2 v output	v/v				
41.a (38.e)	IG RSVR SIN gain at 1 v output	v/v				
41.a (38.f)	IG RSVR SIN gain at 0 v output	v/v				
41.a (39)	IG RSVR SIN average gain	v/v				
41.a (40.a)	Difference between gain at 5 v output and average gain	percent			4	
41.a (40.b)	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
38.a	OG RSVR SIN gain at 5 v output	v/v				
38.b	OG RSVR SIN gain at 4 v output	v/v				
38.c	OG RSVR SIN gain at 3 v output	v/v				
38.d	OG RSVR SIN gain at 2 v output	v/v				
38.e	OG RSVR SIN gain at 1 v output	v/v				
38.f	OG RSVR SIN gain at 0 v output	v/v				
39	OG RSVR SIN average gain	v/v				
40.a	Difference between gain at 5 v output and average gain	percent			4	
40.b	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
40.c	Difference be- tween gain at 3 v output and average gain	percent			4	
40.d	Difference be- tween gain at 2 v output and average gain	percent			4	
40.e	Difference be- tween gain at 1 v output and average gain	percent			4	
40.f	Difference be- tween gain at 0 v output and average gain	percent			4	
41.a (26)	IG RSVR SIN offset (GG212 IV)	vdc				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (27)	Difference between bias and offset	mv			10	
41.a (28)	Algebraically add +2.5 to offset	vdc				
41.a (30)	IG RSVR SIN input	v rms	4.45		5.55	
41.a (32)	IG RSVR SIN ripple	mv p-p			150	
41.a (33)	IG RSVR SIN noise	mv p-p			250	
41.a (36.a)	IG RSVR SIN input at 5 v output	v rms				
41.a (36.b)	IG RSVR SIN input at 4 v output	v rms				
41.a (36.c)	IG RSVR SIN input at 3 v output	v rms				
41.a (36.d)	IG RSVR SIN input at 2 v output	v rms				
41.a (36.e)	IG RSVR SIN input at 1 v output	v rms				
41.a (36.f)	IG RSVR SIN input at 0 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (38.a)	IG RSVR SIN gain at 5 v output	v/v				
41.a (38.b)	IG RSVR SIN gain at 4 v output	v/v				
41.a (38.c)	IG RSVR SIN gain at 3 v output	v/v				
41.a (38.d)	IG RSVR SIN gain at 2 v output	v/v				
41.a (38.e)	IG RSVR SIN gain at 1 v output	v/v				
41.a (38.f)	IG RSVR SIN gain at 0 v output	v/v				
41.a (39)	IG RSVR SIN average gain	v/v				
41.a (40.a)	Difference between gain at 5 v output and average gain	percent			4	
41.a (40.b)	Difference between gain at 4 v output and average gain	percent			4	

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EQUIPMENT TEST
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JDC
NO. 18845
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (40.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
41.a (40.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
41.a (40.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
41.a (40.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
41.b (26)	MG RSVR SIN offset (GG2151V)	vdc				

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JDC
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REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (27)	Difference between bias and offset	mv			10	
41.b (28)	Algebraically add +2.5 to offset	vdc				
41.b (30)	MG RSVR SIN input	v rms	4.45		5.55	
41.b (32)	MG RSVR SIN ripple	mv p-p			160	
41.b (33)	MG RSVR SIN noise	mv p-p			250	
41.b (36.a)	MG RSVR SIN input at 5 v output	v rms				
41.b (36.b)	MG RSVR SIN input at 4 v output	v rms				
41.b (36.c)	MG RSVR SIN input at 3 v output	v rms				
41.b (36.d)	MG RSVR SIN input at 2 v output	v rms				
41.b (36.e)	MG RSVR SIN input at 1 v output	v rms				
41.b (36.f)	MG RSVR SIN input at 0 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (38.a)	MG RSVR SIN gain at 5 v output	v/v				
41.b (38.b)	MG RSVR SIN gain at 4 v output	v/v				
41.b (38.c)	MG RSVR SIN gain at 3 v output	v/v				
41.b (38.d)	MG RSVR SIN gain at 2 v output	v/v				
41.b (38.e)	MG RSVR SIN gain at 1 v output	v/v				
41.b (38.f)	MG RSVR SIN gain at 0 v output	v/v				
41.b (39)	MG RSVR SIN average gain	v/v				
41.b (40.a)	Difference between gain at 5 v output and average gain	percent			4	
41.b (40.b)	Difference between gain at 4 v output and average gain	percent			4	

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JDC
NO. 18845
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (40.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
41.b (40.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
41.b (40.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
41.b (40.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
46	RR SHAFT FINE ERROR offset (GG3311V)	vdc				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.a (40.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
41.a (40.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
41.a (40.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
41.a (40.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
41.b (26)	MG RSVR SIN offset (GG3151V)	vdc				

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EQUIPMENT TEST
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JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (27)	Difference between bias and offset	mv			10	
41.b (28)	Algebraically add +2.5 to offset	vdc				
41.b (30)	MG RSVR SIN input	v rms	4.45		5.55	
41.b (32)	MG RSVR SIN ripple	mv p-p			150	
41.b (33)	MG RSVR SIN noise	mv p-p			250	
41.b (36.a)	MG RSVR SIN input at 5 v output	v rms				
41.b (36.b)	MG RSVR SIN input at 4 v output	v rms				
41.b (36.c)	MG RSVR SIN input at 3 v output	v rms				
41.b (36.d)	MG RSVR SIN input at 2 v output	v rms				
41.b (36.e)	MG RSVR SIN input at 1 v output	v rms				
41.b (36.f)	MG RSVR SIN input at 0 v output	v rms				

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JDC
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REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (38.a)	MG RSVR SIN gain at 5 v output	v/v				
41.b (38.b)	MG RSVR SIN gain at 4 v output	v/v				
41.b (38.c)	MG RSVR SIN gain at 3 v output	v/v				
41.b (38.d)	MG RSVR SIN gain at 2 v output	v/v				
41.b (38.e)	MG RSVR SIN gain at 1 v output	v/v				
41.b (38.f)	MG RSVR SIN gain at 0 v output	v/v				
41.b (39)	MG RSVR SIN average gain	v/v				
41.b (40.a)	Difference between gain at 5 v output and average gain	percent			4	
41.b (40.b)	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.b (40.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
41.b (40.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
41.b (40.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
41.b (40.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
46	RR SHAFT FINE ERROR offset (GG3311V)	vdc				

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EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
47	Difference between bias and offset	mVdc			10	
48	Algebraically add +2.5 to offset	Vdc				
50	RR SHAFT FINE ERROR input	Vrms	1.08		1.32	
52	RR SHAFT FINE ERROR ripple	mV p-p			100	
53	RR SHAFT FINE ERROR noise	mV p-p			100	
56.a	RR SHAFT FINE ERROR input at 5 v output	Vrms				
56.b	RR SHAFT FINE ERROR input at 4 v output	Vrms				
56.c	RR SHAFT FINE ERROR input at 3 v output	Vrms				
56.d	RR SHAFT FINE ERROR input at 2 v output	Vrms				
56.e	RR SHAFT FINE ERROR input at 1 v output	Vrms				
56.f	RR SHAFT FINE ERROR input at 0 v output	Vrms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
58.a	RR SHAFT FINE ERROR gain at 5 v output	V/V				
58.b	RR SHAFT FINE ERROR gain at 4 v output	V/V				
58.c	RR SHAFT FINE ERROR gain at 3 v output	V/V				
58.d	RR SHAFT FINE ERROR gain at 2 v output	V/V				
58.e	RR SHAFT FINE ERROR gain at 1 v output	V/V				
58.f	RR SHAFT FINE ERROR gain at 0 v output	V/V				
59	RR SHAFT FINE ERROR average gain	V/V				
60.a	Difference between gain at 5 v output and average gain	percent			4	
60.b	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
60.c	Difference be- tween gain at 3 v output and average gain	percent			4	
60.d	Difference be- tween gain at 2 v output and average gain	percent			4	
60.e	Difference be- tween gain at 1 v output and average gain	percent			4	
60.f	Difference be- tween gain at 0 v output and average gain	percent			4	
61 (46)	RR TRUN FINE ERROR offset (GG321V)	Vdc				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (47)	Difference between bias and offset	mVdc			10	
61 (48)	Algebraically add +2.5 to offset	Vdc				
61	RR TRUN FINE	Vrms	1.08		1.32	
61 (50)	ERROR input	mV p-p			100	
61 (52)	ERROR ripple	mV p-p			100	
61 (53)	RR TRUN FINE ERROR noise	Vrms				
61 (56.a)	RR TRUN FINE ERROR input at 5 v output	Vrms				
61 (56.b)	RR TRUN FINE ERROR input at 4 v output	Vrms				
61	RR TRUN FINE	Vrms				
61 (56.c)	RR TRUN FINE ERROR input at 3 v output	Vrms				
61 (56.d)	RR TRUN FINE ERROR input at 2 v output	Vrms				
61 (56.e)	RR TRUN FINE ERROR input at 1 v output	Vrms				
61 (56.f)	RR TRUN FINE ERROR input at 0 v output	Vrms				

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JDC
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JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
47	Difference between bias and offset	mVdc			10	
48	Algebraically add +2.5 to offset	Vdc				
50	RR SHAFT FINE ERROR input	Vrms	1.08		1.32	
52	RR SHAFT FINE ERROR ripple	mV p-p			100	
53	RR SHAFT FINE ERROR noise	mV p-p			100	
56.a	RR SHAFT FINE ERROR input at 5 v output	Vrms				
56.b	RR SHAFT FINE ERROR input at 4 v output	Vrms				
56.c	RR SHAFT FINE ERROR input at 3 v output	Vrms				
56.d	RR SHAFT FINE ERROR input at 2 v output	Vrms				
56.e	RR SHAFT FINE ERROR input at 1 v output	Vrms				
56.f	RR SHAFT FINE ERROR input at 0 v output	Vrms				

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JDC
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REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
58.a	RR SHAFT FINE ERROR gain at 5 v output	V/V				
58.b	RR SHAFT FINE ERROR gain at 4 v output	V/V				
58.c	RR SHAFT FINE ERROR gain at 3 v output	V/V				
58.d	RR SHAFT FINE ERROR gain at 2 v output	V/V				
58.e	RR SHAFT FINE ERROR gain at 1 v output	V/V				
58.f	RR SHAFT FINE ERROR gain at 0 v output	V/V				
59	RR SHAFT FINE ERROR average gain	V/V				
60.a	Difference between gain at 5 v output and average gain	percent			4	
60.b	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 22 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / CC
60.e	Difference between gain at 3 v output and average gain	percent			4	
60.d	Difference between gain at 2 v output and average gain	percent			4	
60.e	Difference between gain at 1 v output and average gain	percent			4	
60.f	Difference between gain at 0 v output and average gain	percent			4	
61 (46)	RR TRUN FINE ERROR offset (GG3321V)	Vdc				

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EQUIPMENT TEST
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JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (47)	Difference between bias and offset	mVdc			10	
61 (48)	Algebraically add +2.5 to offset	Vdc				
61 (50)	RR TRUN FINE ERROR input	Vrms	1.08		1.32	
61 (52)	RR TRUN FINE ERROR ripple	mV p-p			100	
61 (53)	RR TRUN FINE ERROR noise	mV p-p			100	
61 (56.a)	RR TRUN FINE ERROR input at 5 v output	Vrms				
61 (56.b)	RR TRUN FINE ERROR input at 4 v output	Vrms				
61 (56.c)	RR TRUN FINE ERROR input at 3 v output	Vrms				
61 (56.d)	RR TRUN FINE ERROR input at 2 v output	Vrms				
61 (56.e)	RR TRUN FINE ERROR input at 1 v output	Vrms				
61 (56.f)	RR TRUN FINE ERROR input at 0 v output	Vrms				

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APOLLO 68N
EQUIPMENT TEST
DATA SHEET 24 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (58.a)	RR TRUN FINE ERROR gain at 5 v output	v/v				
61 (58.b)	RR TRUN FINE ERROR gain at 4 v output	v/v				
61 (58.c)	RR TRUN FINE ERROR gain at 3 v output	v/v				
61 (58.d)	RR TRUN FINE ERROR gain at 2 v output	v/v				
61 (58.e)	RR TRUN FINE ERROR gain at 1 v output	v/v				
61 (58.f)	RR TRUN FINE ERROR gain at 0 v output	v/v				
61 (59)	RR TRUN FINE ERROR average gain	v/v				
61 (60.a)	Difference between gain at 5 v output and average gain	percent			4	
61 (60.b)	Difference between gain at 4 v output and average gain	percent			4	

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EQUIPMENT TEST
DATA SHEET 25 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (60.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
61 (60.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
61 (60.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
61 (60.f)	Difference be- tween gain at 0 v output and average gain	percent			4	

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APOLLO 68N
EQUIPMENT TEST
DATA SHEET 26 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND IX SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
66	IMU HEATER CURRENT output (GG2302X)	vdc	3.90		4.80	
68	IMU HEATER CURRENT ripple	mv p-p			30	
74	IMU BLOWER CURRENT output (GG2303X)	vdc	4.00		4.60	
76	IMU BLOWER CURRENT ripple	mv p-p			250	

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EQUIPMENT TEST
DATA SHEET 24 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (58.a)	RR TRUN FINE ERROR gain at 5 v output	v/v				
61 (58.b)	RR TRUN FINE ERROR gain at 4 v output	v/v				
61 (58.c)	RR TRUN FINE ERROR gain at 3 v output	v/v				
61 (58.d)	RR TRUN FINE ERROR gain at 2 v output	v/v				
61 (58.e)	RR TRUN FINE ERROR gain at 1 v output	v/v				
61 (58.f)	RR TRUN FINE ERROR gain at 0 v output	v/v				
61 (59)	RR TRUN FINE ERROR average gain	v/v				
61 (60.a)	Difference between gain at 5 v output and average gain	percent			4	
61 (60.b)	Difference between gain at 4 v output and average gain	percent			4	

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APOLLO G8N
EQUIPMENT TEST
DATA SHEET 25 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
61 (60.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
61 (60.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
61 (60.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
61 (60.f)	Difference be- tween gain at 0 v output and average gain	percent			4	

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APOLLO G8N
EQUIPMENT TEST
DATA SHEET 26 OF 26

JDC
NO. 18845
REV. -

JOB SIGNAL CONDITIONER TORQUE MOTOR AND 1X SINE GIMBAL TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
66	IMU HEATER CURRENT output (GC2302X)	vdc	3.90		4.80	
68	IMU HEATER CURRENT ripple	mv P-P			30	
74	IMU BLOWER CURRENT output (GC2303X)	vdc	4.00		4.80	
76	IMU BLOWER CURRENT ripple	mv P-P			250	

DATE

SUBSYSTEM
DESCRIPTION Pre-Installation acceptance testing of CDU fine error channels in flight qualification LEM signal conditioner

ASSY

Rev. Let.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES	Procurement
A	8-31-67	34485	All	MIT NASA	specs 6007010 and 6007011	
				EAJ		
					IMPORTANT	
					INTERVAL	
					TOOLS AND MATERIAL	

NOTE: 1. Table I is provided as an aid for checkout and trouble analysis. The table lists crosbar setting, signal name, input pins, output pins, and GG number for each channel tested in JDC.

2. If SCA testing has been interrupted prior to performance of this JDC, perform JDC 18840 before proceeding to re-establish initial turn-on conditions

and to insure that power supply output are within tolerance.

3. A complete SCA checkout is not required to obtain information to plot calibration curves. If only calibration curves are required, set crosbar to positions 06, 07, and 08 and perform steps 15 through 18; and set crosbar to position 97 and perform steps 32, 33, and 34.

VERIFICATION WITH SIDL REQUIRED BEFORE USE

DATE

FORM 0001A
Chg. 1-18-66

JOB TESTS - LEM

ASSY

Table I. Crosbar and Channel Identification List

Crosbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
06	IG CDU FINE ERROR	J1-B33	J1-A33	J1-C10	J1-B9	GG2220V
07	MG CDU FINE ERROR	J1-C33	J1-A33	J1-C9	J1-B9	GG2250V
08	OG CDU FINE ERROR	J1-D33	J1-A33	J1-C8	J1-B9	GG2280V
96	PIPA CAL MOD TEMP	J1-C32	J1-D32	J1-D13	J1-C2	GG6020T
97	IRIG TEMP	J1-B19	J1-B20	J1-G13	J1-C2	GG2801T
50	+2.5V BIAS	--	--	--	--	GG1111V

- NOTE: Insure that NORMAL and VOLT-METER are on.
- Set crosbar to 50 (+2.5V BIAS channel).
 - Press PUSH TO ADVANCE and X BAR OUTPUT.
 - Record dc bias voltage indicated on DVM.
 - Set crosbar to 06 (IG CDU FINE ERROR channel).
 - Set 800 CPS PHASE GENERATOR to 0 (+0.1) degree.
 - Set 3200/800 CPS ADJUST to 0.00000.
 - Press PUSH TO ADVANCE and PUSH TO INITIATE on.
 - Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
 - Record difference between value recorded in step 8 and value recorded in step 3.

- Adjust 3200/800 CPS ADJUST until DVM indicates 5.000 (+0.005) vdc.
- Press VOLT-METER off and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

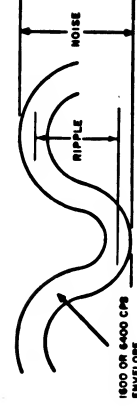


Figure 1. Typical Ripple and Noise Pattern
13. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.

DATE

JOB TESTS - LEM

SUBSYSTEM

ASSY

- Press SCOPE off and VOLT-METER on.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Set 800 CPS PHASE GENERATOR as shown. Perform steps 16, 17, and 18 for each voltage.

Test Setting	Output
a. 0 (+0.1) deg	5.000 (+0.005) vdc
b. -0 (+0.1) deg	4.000 (+0.005) vdc
c. 0 (+0.1) deg	3.000 (+0.005) vdc
d. 0 (+0.1) deg	2.750 (+0.005) vdc
e. 0 (+0.1) deg	2.500 (+0.100) vdc
f. 180 (+0.1) deg	2.500 (+0.100) vdc
g. 180 (+0.1) deg	2.250 (+0.005) vdc
h. 180 (+0.1) deg	2.000 (+0.005) vdc
i. 180 (+0.1) deg	1.000 (+0.005) vdc
j. 180 (+0.1) deg	0.000 (+0.005) vdc
- Record dc output voltage indicated on DVM for tests a through j.
- Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through j.
- Press X BAR OUTPUT and return to step 15 until all tests are completed.
- Compute and record gains a, b, c, h, i, and j using following equation for each gain:
$$GAIN = \frac{E_{out} (step 16) - E_{offset} (step 8)}{E_{in} (step 17)}$$
- Add gains recorded in step 19, divide by 6 to find average gain, and record average.

- Determine and record minimum and maximum value of gains recorded in step 19 from average gain recorded in step 20 as follows:
 - MIN VALUE = average gain (step 20) $\times 0.96$
 - MAX VALUE = average gain (step 20) $\times 1.04$
- Set crosbar to next position, listed below, and repeat steps 5 through 21. Continue until all following tests are completed:

Test	X BAR Channel Tested
a. 07	MG CDU FINE ERROR
b. 08	OG CDU FINE ERROR
- Set crosbar to 96 (PIPA CAL MOD TEMP channel).
- Disconnect ground lead from decade resistance box.
- Set decade resistance box to 1280.00.
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.
- Press X BAR OUTPUT and adjust decade resistance box until DVM indicates 2.500 (+0.005) vdc. Record decade resistance box setting.
- Connect ground lead to decade resistance box as shown in test setup.
- Set crosbar to 97 (IRIG TEMP channel).
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.

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JOB TESTS - LEM

SUBSYSTEM

ASSY

- Set decade resistance box to 2816.
- Adjust decade resistance box until DVM indicates 0.000 (+0.005) vdc.
- Record decade resistance box setting.
- Adjust decade resistance box until DVM indicates output voltage indicated below. Record decade resistance box setting at each DVM indication.

Test	DVM Indication
a. 1.000 (+0.005) vdc	
b. 2.000 (+0.005) vdc	
c. 3.000 (+0.005) vdc	
d. 4.000 (+0.005) vdc	
e. 5.000 (+0.005) vdc	
- Press VOLT-METER off and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
- Measure peak-to-peak noise on oscilloscope, as shown on figure 1, and record.
- Press SCOPE off and VOLT-METER on.

NOTE: If SCA testing is to be temporarily discontinued at this time, perform step 39. If shutdown period is to be extensive, perform steps 39 and 40. Press POWER ON off.

40. Turn off all test equipment and set wall power breaker to OFF.

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 1 OF 13

JDC
NO. 18846
REV. A
INITIAL TORR 32500

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	REV.	SITE / LOCATION
MAJOR GROUND SUPPORT EQUIPMENT		END	TOTAL ELAPSED
NAME		SER. NO.	CAL DATE
NAME		SER. NO.	CAL DATE
CONDUCTED BY		APPROVED BY	
NAME/AFFILIATION		NAME/AFFILIATION	

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
3	+2.5V BIAS (GG1111V)	vdc	2.45		2.55	
8	IG CDU FINE ERROR offset (GG2220V)	vdc	2.465		2.555	
9	Difference between bias and offset	mv			10	
12	IG CDU FINE ERROR ripple	mv p-p			100	
13	IG CDU FINE ERROR noise	mv p-p			125	
16.a	IG CDU FINE ERROR 5v output	vdc	4.995		5.005	
16.b	IG CDU FINE ERROR 4v output	vdc	3.995		4.005	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 2 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
16.c	IG CDU FINE ERROR 3v output	vdc	2.995		3.005	
16.d	IG CDU FINE ERROR 2.75v out- put	vdc	2.745		2.755	
16.e	IG CDU FINE ERROR 2.5v output	vdc	2.400		2.600	
16.f	IG CDU FINE ERROR 2.5v output	vdc	2.400		2.600	
16.g	IG CDU FINE ERROR 2.25v output	vdc	2.245		2.255	
16.h	IG CDU FINE ERROR 2v output	vdc	1.995		2.005	
16.i	IG CDU FINE ERROR 1v output	vdc	0.995		1.005	
16.j	IG CDU FINE ERROR 0v output	vdc	-0.005		+0.005	
17.a	IG CDU FINE ERROR input at 5v output	vrms	1.08		1.32	
17.b	IG CDU FINE ERROR input at 4v output	vrms				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 3 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
17.c	IG CDU FINE ERROR input at 3v output	vrms				
17.d	IG CDU FINE ERROR input at 2.75v output	vdc				
17.e	IG CDU FINE ERROR input at 2.5v output	vrms				
17.f	IG CDU FINE ERROR input at 2.5v output	vrms				
17.g	IG CDU FINE ERROR input at 2.25v output	vrms				
17.h	IG CDU FINE ERROR input at 2v output	vrms				
17.i	IG CDU FINE ERROR input at 1v output	vrms				
17.j	IG CDU FINE ERROR input at 0v output	vrms				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 4 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
19.a	IG CDU FINE ERROR gain at 5v output	v/v	Step 21.a		Step 21.b	
19.b	IG CDU FINE ERROR gain at 4v output	v/v	Step 21.a		Step 21.b	
19.c	IG CDU FINE ERROR gain at 3v output	v/v	Step 21.a		Step 21.b	
19.h	IG CDU FINE ERROR gain at 2v output	v/v	Step 21.a		Step 21.b	
19.i	IG CDU FINE ERROR gain at 1v output	v/v	Step 21.a		Step 21.b	
19.j	IG CDU FINE ERROR gain at 0v output	v/v	Step 21.a		Step 21.b	
20	IG CDU FINE ERROR average gain	v/v				
21.a	MIN VALUE	v/v				
21.b	MAX VALUE	v/v				

DATE

APOLLO GSN
EQUIPMENT TEST
DATA SHEET 5 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.a (8)	MG CDU FINE ERROR offset (GG2250V)	vdc	2.465		2.535	
22.a (9)	Difference between bias and offset	mv			10	
22.a (12)	MG CDU FINE ERROR ripple	mvp-p			100	
22.a (13)	MG CDU FINE ERROR noise	mvp-p			125	
22.a (16.a)	MG CDU FINE ERROR 5v output	vdc	4.995		5.005	
22.a (16.b)	MG CDU FINE ERROR 4v output	vdc	3.995		4.005	
22.a (16.c)	MG CDU FINE ERROR 3v output	vdc	2.995		3.005	
22.a (16.d)	MG CDU FINE ERROR 2.75v output	vdc	2.745		2.755	
22.a (16.e)	MG CDU FINE ERROR 2.5v output	vdc	2.400		2.600	
22.a (16.f)	MG CDU FINE ERROR 2.5v output	vdc	2.400		2.600	

DATE

APOLLO GSN
EQUIPMENT TEST
DATA SHEET 6 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.a (16.g)	MG CDU FINE ERROR 2.25v output	vdc	2.245		2.255	
22.a (16.h)	MG CDU FINE ERROR 2v output	vdc	1.995		2.005	
22.a (16.i)	MG CDU FINE ERROR 1v output	vdc	0.995		1.005	
22.a (16.j)	MG CDU FINE ERROR 0v output	vdc	-0.005		+0.005	
22.a (17.a)	MG CDU FINE ERROR input at 5v output	vrms	1.08		1.32	
22.a (17.b)	MG CDU FINE ERROR input at 4v output	vrms				
22.a (17.c)	MG CDU FINE ERROR input at 3v output	vrms				
22.a (17.d)	MG CDU FINE ERROR input at 2.75v output	vrms				
22.a (17.e)	MG CDU FINE ERROR input at 2.5v output	vrms				

DATE

APOLLO GSN
EQUIPMENT TEST
DATA SHEET 7 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.a (17.f)	MG CDU FINE ERROR input at 2.5v output	vrms				
22.a (17.g)	MG CDU FINE ERROR input at 2.25v output	vrms				
22.a (17.h)	MG CDU FINE ERROR input at 2v output	vrms				
22.a (17.i)	MG CDU FINE ERROR input at 1v output	vrms				
22.a (17.j)	MG CDU FINE ERROR input at 0v output	vrms				
22.a (19.a)	MG CDU FINE ERROR gain at 5v output	v/v	Step 22.a (21.a)		Step 22.a (21.b)	
22.a (19.b)	MG CDU FINE ERROR gain at 4v output	v/v	Step 22.a (21.a)		Step 22.a (21.b)	
22.a (19.c)	MG CDU FINE ERROR gain at 3v output	v/v	Step 22.a (21.a)		Step 22.a (21.b)	

DATE

APOLLO GSN
EQUIPMENT TEST
DATA SHEET 8 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.a (19.h)	MG CDU FINE ERROR gain at 2v output	v/v	Step 22.a (21.a)		Step 22.a (21.b)	
22.a (19.i)	MG CDU FINE ERROR gain at 1v output	v/v	Step 22.a (21.a)		Step 22.a (21.b)	
22.a (19.j)	MG CDU FINE ERROR gain at 0v output	v/v	Step 22.a (21.a)		Step 22.a (21.b)	
22.a (20)	MG CDU FINE ERROR average gain	v/v				
22.a (21.a)	MIN VALUE	v/v				
22.a (21.b)	MAX VALUE	v/v				
22.b (8)	OG CDU FINE ERROR offset (GG2280V)	vdc	2.465		2.535	
22.b (9)	Difference between bias and offset	mv			10	
22.b (12)	OG CDU FINE ERROR ripple	mvp-p			100	

DATE

APOLLO 68N
EQUIPMENT TEST
DATA SHEET 9 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.b (13)	OG CDU FINE ERROR noise	mvp-p			125	
22.b (16.a)	OG CDU FINE ERROR 5v output	vdc	4.995		5.005	
22.b (16.b)	OG CDU FINE ERROR 4v output	vdc	3.995		4.005	
22.b (16.c)	OG CDU FINE ERROR 3v output	vdc	2.995		3.005	
22.b (16.d)	OG CDU FINE ERROR 2.75v output	vdc	2.745		2.755	
22.b (16.e)	OG CDU FINE ERROR 2.5v output	vdc	2.400		2.600	
22.b (16.f)	OG CDU FINE ERROR 2.5v output	vdc	2.400		2.600	
22.b (16.g)	OG CDU FINE ERROR 2.25v output	vdc	2.245		2.255	
22.b (16.h)	OG CDU FINE ERROR 2v output	vdc	1.995		2.005	

DATE

APOLLO 68N
EQUIPMENT TEST
DATA SHEET 10 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.b (16.i)	OG CDU FINE ERROR 1v output	vdc	0.995		1.005	
22.b (16.j)	OG CDU FINE ERROR 0v output	vdc	-0.005		+0.005	
22.b (17.a)	OG CDU FINE ERROR input at 5v output	vrms	1.08		1.32	
22.b (17.b)	OG CDU FINE ERROR input at 4v output	vrms				
22.b (17.c)	OG CDU FINE ERROR input at 3v output	vrms				
22.b (17.d)	OG CDU FINE ERROR input at 2.75v output	vrms				
22.b (17.e)	OG CDU FINE ERROR input at 2.5v output	vrms				
22.b (17.f)	OG CDU FINE ERROR input at 2.5v output	vrms				
22.b (17.g)	OG CDU FINE ERROR input at 2.25v output	vrms				

DATE

APOLLO 68N
EQUIPMENT TEST
DATA SHEET 11 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.b (17.h)	OG CDU FINE ERROR input at 2v output	vrms				
22.b (17.i)	OG CDU FINE ERROR input at 1v output	vrms				
22.b (17.j)	OG CDU FINE ERROR input at 0v output	vrms				
22.b (19.a)	OG CDU FINE ERROR gain at 5v output	v/v	Step 22.b (21.a)		Step 22.b (21.b)	
22.b (19.b)	OG CDU FINE ERROR gain at 4v output	v/v	Step 22.b (21.a)		Step 22.b (21.b)	
22.b (19.c)	OG CDU FINE ERROR gain at 3v output	v/v	Step 22.b (21.a)		Step 22.b (21.b)	
22.b (19.h)	OG CDU FINE ERROR gain at 2v output	v/v	Step 22.b (21.a)		Step 22.b (21.b)	
22.b (19.i)	OG CDU FINE ERROR gain at 1v output	v/v	Step 22.b (21.a)		Step 22.b (21.b)	

DATE

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EQUIPMENT TEST
DATA SHEET 12 OF 13

JDC
NO. 18846
REV. A

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
22.b (19.j)	OG CDU FINE ERROR gain at 0v output	v/v	Step 22.b (21.a)		Step 22.b (21.b)	
22.b (20)	OG CDU FINE ERROR average gain	v/v				
22.b (21.a)	MIN VALUE	v/v				
22.b (21.b)	MAX VALUE	v/v				
27	PIPA CAL MOD TEMP at 2.5v output (GG6020T)	ohms	1152.0		1408.0	
33	Input resistance at 0v output (GG2301T)	ohms	2786		2846	
34.a	Input resistance at 1v output	ohms	2602		2662	
34.b	Input resistance at 2v output	ohms	2434		2494	
34.c	Input resistance at 3v output	ohms	2278		2338	
34.d	Input resistance at 4v output	ohms	2137		2197	

DATE

SUBSYSTEM ASSY
DESCRIPTION Pre-Installation acceptance testing of CDU fine error channels in flight qualification LEM signal conditioner.

Rev. Let.	Date	TORR NO.	PAGES REVISED	APPROVAL	REFERENCES
			JDC	MIT NASA	Procurement spec 6007011
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and GG number for each channel tested in JDC.

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
06	IG CDU FINE ERROR	J1-B33	J1-A33	J1-C10	J1-B9	GG2220V
07	MG CDU FINE ERROR	J1-C33	J1-A33	J1-C9	J1-B9	GG2250V
08	OG CDU FINE ERROR	J1-D33	J1-A33	J1-C8	J1-B9	GG2280V
96	PIPA CAL MOD TEMP	J1-C32	J1-D32	J1-D13	J1-F12	GG6020V
97	IRIG TEMP	J1-B19	J1-B20	J1-G13	J1-F12	GG2301T

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SUBSYSTEM ASSY

- Set crossbar to 50 (+2.5 V BIAS channel).
- Press PUSH TO ADVANCE and X BAR OUTPUT.
- Measure and record dc bias voltage indicated on DVM.
- Set crossbar to 06 (IG CDU FINE ERROR channel).
- Set 800 CPS PHASE GENERATOR to 0 (+0.1) degree.
- Set 3200/800 CPS ADJUST to 0.00000.
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.
- Press X BAR OUTPUT and record dc offset voltage indicated on DVM.
- Record difference between value recorded in step 8 and value recorded in step 9.
- Algebraically add value recorded in step 8 to +2.5 and record.
- Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 10.
- Press X BAR INPUT and record ac input voltage indicated on DVM.
- Press X BAR OUTPUT, VOLT METER off, and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

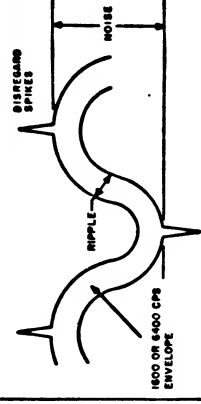


Figure 1. Typical Ripple and Noise Pattern
15. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
16. Press SCOPE off and VOLT METER on.
17. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below.
Set 800 CPS PHASE GENERATOR as shown.
Perform steps 18 and 19 for each voltage.
Test 800 CPS PHASE Adjust 3200/800 GENERATOR CPS ADJUST for output
a. 0 (+0.1) deg 5,000 (+0.005) vdc
b. 0 (+0.1) deg 4,000 (+0.005) vdc
c. 0 (+0.1) deg 3,000 (+0.005) vdc
d. 180 (+0.1) deg 2,000 (+0.005) vdc
e. 180 (+0.1) deg 1,000 (+0.005) vdc
f. 180 (+0.1) deg 0,000 (+0.005) vdc
18. Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through f.
19. Press X BAR OUTPUT and return to step 17 until all tests are completed.

DATE

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SUBSYSTEM ASSY

- Compute and record gains a through f using following equation for each gain:
 $E_{out} = E_{in} - E_{offset}$ (step 8)
Gain = $\frac{E_{in}}{E_{out}}$ (step 18)
- Add gains recorded in step 20, divide by 6 to find average gain, and record average.
- Compute and record percentage of difference between each gain, a through f, and average gain.
- Set crossbar to next position, listed below, and repeat steps 5 through 22. Continue until all following tests are completed:
- Test XBAR Channel Tested
a. 07 MG CDU FINE ERROR
b. 08 OG CDU FINE ERROR
- Set crossbar to 96 (PIPA CAL MOD TEMP channel).
- Disconnect ground lead from decade resistance box.
- Set decade resistance box to 1280.00.
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.
- Press X BAR OUTPUT and record dc output voltage indicated on DVM.
- Connect ground lead to decade resistance box as shown in test setup.
- Set crossbar to 97 (IRIG TEMP channel).
- Set decade resistance box to 2816.00.
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.
- Measure and record dc output voltage indicated on DVM.
- Set decade resistance box to 2384.34.
- Measure and record dc output voltage indicated on DVM.
- Set decade resistance box to 2037.36.
- Measure and record dc output voltage indicated on DVM.
- Press VOLT METER off and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.
- Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.
- Press SCOPE off and VOLT METER on.

DATE

FORM 00144
Chg. 7-23-65

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

ASSEMBLY UNDER TEST				TEST HISTORY			
TITLE	DATE	START	END	SITE / LOCATION	DATE	START	END
SER. NO.	DWG	REV.			TIME	START	END
MAJOR GROUND SUPPORT EQUIPMENT							
NAME				SER. NO.			
NAME				SER. NO.			
CONDUCTED BY				APPROVED BY			
NAME/AFFILIATION				NAME/AFFILIATION			
JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
3	Bias voltage	vdc					
8	IG CDU FINE ERROR offset (GG2220V)	vdc					

NOTE
Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. GG number is listed in first data sheet entry for each channel. Figure 1 is provided as an aid during performance of ripple and noise measurements.

SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of CDU fine error channels in flight qualification LEM signal conditioner.

Rev. Let.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
		JDC	D.S.	MIT NASA	Procurement spec 6007 J11
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table I is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and GG number for each channel tested in JDC.

Table I. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		GG Number
		High	Low	High	Low	
06	IG CDU FINE ERROR	J1-B33	J1-A33	J1-C10	J1-B9	GC2220V
07	MG CDU FINE ERROR	J1-C33	J1-A33	J1-C9	J1-B9	GC2250V
08	OG CDU FINE ERROR	J1-D33	J1-A33	J1-C8	J1-B9	GC2280V
96	PIPA CAL MOD TEMP	J1-C32	J1-D32	J1-D13	J1-F12	GC6020T
97	IRIG TEMP	J1-B19	J1-B20	J1-G13	J1-F12	GC2301T

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20. Compute and record gains a through f using following equation for each gain:
 $E_{out} \text{ (step 17)} - E_{offset} \text{ (step 8)}$

$$GAIN = \frac{E_{in} \text{ (step 18)}}{E_{out} \text{ (step 17)} - E_{offset} \text{ (step 8)}}$$

21. Add gains recorded in step 20, divide by 6 to find average gain, and record average.

22. Compute and record percentage of difference between each gain, a through f, and average gain.

23. Set crossbar to next position, listed below, and repeat steps 5 through 22. Continue until all following tests are completed:

Test XBAR Channel Tested
a. 07 MG CDU FINE ERROR
b. 08 OG CDU FINE ERROR

24. Set crossbar to 96 (PIPA CAL MOD TEMP channel).

25. Disconnect ground lead from decade resistance box.

26. Set decade resistance box to 1280.00.

27. Press PUSH TO ADVANCE and PUSH TO INITIATE on.

28. Press X BAR OUTPUT and record dc output voltage indicated on DVM.

29. Connect ground lead to decade resistance box as shown in test setup.

30. Set crossbar to 97 (IRIG TEMP channel).

TITLE		DATE		START		END		SITE / LOCATION	
SER. NO.		DWS		REV.		END		TOTAL ELAPSED	
MAJOR GROUND SUPPORT EQUIPMENT									
NAME		SER. NO.		CAL DATE					
NAME		SER. NO.		CAL DATE					
CONDUCTED BY NAME/AFFILIATION									
APPROVED BY NAME/AFFILIATION									

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ AUC
3	Bias voltage	vdc				
8	IG CDU FINE ERROR offset (GC2220V)	vdc				

NOTE
Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. GG number is listed in first data sheet entry for each channel. Figure 1 is provided as an aid during performance of ripple and noise measurements.

SUBSYSTEM
1. Set crossbar to 50 (+2.5 V BIAS channel).
2. Press PUSH TO ADVANCE and X BAR OUTPUT.

3. Measure and record dc bias voltage indicated on DVM.
4. Set crossbar to 06 (IG CDU FINE ERROR channel).

5. Set 800 CPS PHASE GENERATOR to 0 (+0.1) degree.

6. Set 3200/800 CPS ADJUST to 0.00000.

7. Press PUSH TO ADVANCE and PUSH TO INITIATE on.

8. Press X BAR OUTPUT and record dc offset voltage indicated on DVM.

9. Record difference between value recorded in step 8 and value recorded in step 3.

10. Algebraically add value recorded in step 8 to +2.5 and record.

11. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 10.

12. Press X BAR INPUT and record ac input voltage indicated on DVM.

13. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.

14. Measure peak-to-peak ripple voltage on oscilloscope, as shown in figure 1, and record.

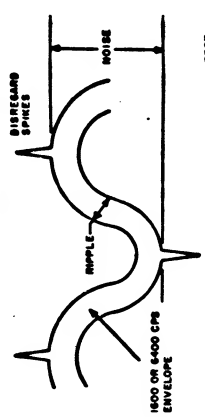


Figure 1. Typical Ripple and Noise Pattern

15. Measure peak-to-peak noise on oscilloscope, as shown in figure 1, and record.

16. Press SCOPE off and VOLTMETER on.

17. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below.

Set 800 CPS PHASE GENERATOR as shown. Perform steps 18 and 19 for each voltage.

Test 800 CPS PHASE GENERATOR setting

a. 0 (+0.1) deg 5.000 (+0.005) vdc

b. 0 (+0.1) deg 4.000 (+0.005) vdc

c. 0 (+0.1) deg 3.000 (+0.005) vdc

d. 180 (+0.1) deg 2.000 (+0.005) vdc

e. 180 (+0.1) deg 1.000 (+0.005) vdc

f. 180 (+0.1) deg 0.000 (+0.005) vdc

18. Press X BAR INPUT and record ac input voltage indicated on DVM for tests a through f.

19. Press X BAR OUTPUT and return to step 17 until all tests are completed.

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 2 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
9	Difference between bias and offset	mVdc			10	
10	Algebraically add +2.5 to offset	Vdc				
12	IG CDU FINE ERROR input	Vrms	1.08		1.32	
14	IG CDU FINE ERROR ripple	mV p-p			100	
15	IG CDU FINE ERROR noise	mV p-p			100	
18.a	IG CDU FINE ERROR input at 5 v output	Vrms				
18.b	IG CDU FINE ERROR input at 4 v output	Vrms				
18.c	IG CDU FINE ERROR input at 3 v output	Vrms				
18.d	IG CDU FINE ERROR input at 2 v output	Vrms				
18.e	IG CDU FINE ERROR input at 1 v output	Vrms				
18.f	IG CDU FINE ERROR input at 0 v output	Vrms				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 3 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
20.a	IG CDU FINE ERROR gain at 5 v output	V/V				
20.b	IG CDU FINE ERROR gain at 4 v output	V/V				
20.c	IG CDU FINE ERROR gain at 3 v output	V/V				
20.d	IG CDU FINE ERROR gain at 2 v output	V/V				
20.e	IG CDU FINE ERROR gain at 1 v output	V/V				
20.f	IG CDU FINE ERROR gain at 0 v output	V/V				
21	IG CDU FINE ERROR average gain	V/V				
22.a	Difference between gain at 5 v output and average gain	percent			4	
22.b	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 4 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
22.c	Difference between gain at 3 v output and average gain	percent			4	
22.d	Difference between gain at 2 v output and average gain	percent			4	
22.e	Difference between gain at 1 v output and average gain	percent			4	
22.f	Difference between gain at 0 v output and average gain	percent			4	
23.a (8)	MG CDU FINE ERROR offset (GG2250V)	Vdc				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 5 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.a (9)	Difference between bias and offset	mVdc			10	
23.a (10)	Algebraically add +2.5 to offset	Vdc				
23.a (12)	MG CDU FINE ERROR input	Vrms	1.08		1.32	
23.a (14)	MG CDU FINE ERROR ripple	mV p-p			100	
23.a (15)	MG CDU FINE ERROR noise	mV p-p			100	
23.a (18.a)	MG CDU FINE ERROR input at 5 v output	Vrms				
23.a (18.b)	MG CDU FINE ERROR input at 4 v output	Vrms				
23.a (18.c)	MG CDU FINE ERROR input at 3 v output	Vrms				
23.a (18.d)	MG CDU FINE ERROR input at 2 v output	Vrms				
23.a (18.e)	MG CDU FINE ERROR input at 1 v output	Vrms				
23.a (18.f)	MG CDU FINE ERROR input at 0 v output	Vrms				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 2 OF 11

JDC
NO. 18846
REV. 1

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
9	Difference between bias and offset	mVdc			10	
10	Algebraically add +2.5 to offset	Vdc				
12	IG CDU FINE ERROR input	Vrms	1.08		1.32	
14	IG CDU FINE ERROR ripple	mV p-p			100	
15	IG CDU FINE ERROR noise	mV p-p			100	
18.a	IG CDU FINE ERROR input at 5 v output	Vrms				
18.b	IG CDU FINE ERROR input at 4 v output	Vrms				
18.c	IG CDU FINE ERROR input at 3 v output	Vrms				
18.d	IG CDU FINE ERROR input at 2 v output	Vrms				
18.e	IG CDU FINE ERROR input at 1 v output	Vrms				
18.f	IG CDU FINE ERROR input at 0 v output	Vrms				

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EQUIPMENT TEST
DATA SHEET 3 OF 11

JDC
NO. 18846
REV. 1

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
20.a	IG CDU FINE ERROR gain at 5 v output	V/V				
20.b	IG CDU FINE ERROR gain at 4 v output	V/V				
20.c	IG CDU FINE ERROR gain at 3 v output	V/V				
20.d	IG CDU FINE ERROR gain at 2 v output	V/V				
20.e	IG CDU FINE ERROR gain at 1 v output	V/V				
20.f	IG CDU FINE ERROR gain at 0 v output	V/V				
21	IG CDU FINE ERROR average gain	V/V				
22.a	Difference between gain at 5 v output and average gain	percent			4	
22.b	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 4 OF 11

JDC
NO. 18846
REV. 1

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
22.c	Difference between gain at 3 v output and average gain	percent			4	
22.d	Difference between gain at 2 v output and average gain	percent			4	
22.e	Difference between gain at 1 v output and average gain	percent			4	
22.f	Difference between gain at 0 v output and average gain	percent			4	
23.a (b)	MG CDU FINE ERROR offset (GG2250V)	Vdc				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 5 OF 11

JDC
NO. 18846
REV. 1

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.a (9)	Difference between bias and offset	mVdc			10	
23.a (10)	Algebraically add +2.5 to offset	Vdc				
23.a (12)	MG CDU FINE ERROR input	Vrms	1.08		1.32	
23.a (14)	MG CDU FINE ERROR ripple	mV p-p			100	
23.a (15)	MG CDU FINE ERROR noise	mV p-p			100	
23.a (18.a)	MG CDU FINE ERROR input at 5 v output	Vrms				
23.a (18.b)	MG CDU FINE ERROR input at 4 v output	Vrms				
23.a (18.c)	MG CDU FINE ERROR input at 3 v output	Vrms				
23.a (18.d)	MG CDU FINE ERROR input at 2 v output	Vrms				
23.a (18.e)	MG CDU FINE ERROR input at 1 v output	Vrms				
23.a (18.f)	MG CDU FINE ERROR input at 0 v output	Vrms				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 8 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.a (20.a)	MG CDU FINE ERROR gain at 5 v output	v/v				
23.a (20.b)	MG CDU FINE ERROR gain at 4 v output	v/v				
23.a (20.c)	MG CDU FINE ERROR gain at 3 v output	v/v				
23.a (20.d)	MG CDU FINE ERROR gain at 2 v output	v/v				
23.a (20.e)	MG CDU FINE ERROR gain at 1 v output	v/v				
23.a (20.f)	MG CDU FINE ERROR gain at 0 v output	v/v				
23.a (21)	MG CDU FINE ERROR average gain	v/v				
23.a (22.a)	Difference between gain at 5 v output and average gain	percent			4	
23.a (22.b)	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 7 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.a (22.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
23.a (22.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
23.a (22.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
23.a (22.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
23.b (6)	OG CDU FINE ERROR offset (GG2280V)	vdc				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 8 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.b (9)	Difference between bias and offset	mVdc			10	
23.b (10)	Algebraically add +2.5 to offset	vdc				
23.b (12)	OG CDU FINE ERROR input	vrms	1.08		1.32	
23.b (14)	OG CDU FINE ERROR ripple	mV p-p			100	
23.b (15)	OG CDU FINE ERROR noise	mV p-p			100	
23.b (18.a)	OG CDU FINE ERROR input at 5 v output	vrms				
23.b (18.b)	OG CDU FINE ERROR input at 4 v output	vrms				
23.b (18.c)	OG CDU FINE ERROR input at 3 v output	vrms				
23.b (18.d)	OG CDU FINE ERROR input at 2 v output	vrms				
23.b (18.e)	OG CDU FINE ERROR input at 1 v output	vrms				
23.b (18.f)	OG CDU FINE ERROR input at 0 v output	vrms				

DATE

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 9 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.b (20.a)	OG CDU FINE ERROR gain at 5 v output	v/v				
23.b (20.b)	OG CDU FINE ERROR gain at 4 v output	v/v				
23.b (20.c)	OG CDU FINE ERROR gain at 3 v output	v/v				
23.b (20.d)	OG CDU FINE ERROR gain at 2 v output	v/v				
23.b (20.e)	OG CDU FINE ERROR gain at 1 v output	v/v				
23.b (20.f)	OG CDU FINE ERROR gain at 0 v output	v/v				
23.b (21)	OG CDU FINE ERROR average gain	v/v				
23.b (22.a)	Difference between gain at 5 v output and average gain	percent			4	
23.b (22.b)	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G8N
EQUIPMENT TEST
DATA SHEET 8 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.a (20.a)	MG CDU FINE ERROR gain at 5 v output	v/v				
23.a (20.b)	MG CDU FINE ERROR gain at 4 v output	v/v				
23.a (20.c)	MG CDU FINE ERROR gain at 3 v output	v/v				
23.a (20.d)	MG CDU FINE ERROR gain at 2 v output	v/v				
23.a (20.e)	MG CDU FINE ERROR gain at 1 v output	v/v				
23.a (20.f)	MG CDU FINE ERROR gain at 0 v output	v/v				
23.a (21)	MG CDU FINE ERROR average gain	v/v				
23.a (22.a)	Difference between gain at 5 v output and average gain	percent			4	
23.a (22.b)	Difference between gain at 4 v output and average gain	percent			4	

DATE

APOLLO G8N
EQUIPMENT TEST
DATA SHEET 7 OF 11

JDC
NO. 18846
REV. -

JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.a (22.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
23.a (22.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
23.a (22.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
23.a (22.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
23.b (8)	OG CDU FINE ERROR offset (GG2280V)	vdc				

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JDC
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JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.b (9)	Difference between bias and offset	mVdc			10	
23.b (10)	Algebraically add +2.5 to offset	vdc				
23.b (12)	OG CDU FINE ERROR input	v rms	1.08		1.32	
23.b (14)	OG CDU FINE ERROR ripple	mV p-p			100	
23.b (15)	OG CDU FINE ERROR noise	mV p-p			100	
23.b (16.a)	OG CDU FINE ERROR input at 5 v output	v rms				
23.b (16.b)	OG CDU FINE ERROR input at 4 v output	v rms				
23.b (16.c)	OG CDU FINE ERROR input at 3 v output	v rms				
23.b (16.d)	OG CDU FINE ERROR input at 2 v output	v rms				
23.b (16.e)	OG CDU FINE ERROR input at 1 v output	v rms				
23.b (16.f)	OG CDU FINE ERROR input at 0 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.b (20.a)	OG CDU FINE ERROR gain at 5 v output	v/v				
23.b (20.b)	OG CDU FINE ERROR gain at 4 v output	v/v				
23.b (20.c)	OG CDU FINE ERROR gain at 3 v output	v/v				
23.b (20.d)	OG CDU FINE ERROR gain at 2 v output	v/v				
23.b (20.e)	OG CDU FINE ERROR gain at 1 v output	v/v				
23.b (20.f)	OG CDU FINE ERROR gain at 0 v output	v/v				
23.b (21)	OG CDU FINE ERROR average gain	v/v				
23.b (22.a)	Difference between gain at 5 v output and average gain	percent			4	
23.b (22.b)	Difference between gain at 4 v output and average gain	percent			4	

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JDC
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JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.b (22.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
23.b (22.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
23.b (22.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
23.b (22.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
28	PIPA CAL MOD TEMP at 1280 ohm Input (GG6020)	vdc	2.25		2.75	
33	IRIG TEMP output at 2816 ohm Input (GG2301T)	vdc	-0.20		+0.20	

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JDC
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JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
35	IRIG TEMP output at 2384 ohm Input	vdc	2.40		2.60	
37	IRIG TEMP output at 2037 ohm Input	vdc	4.80		5.20	
39	IRIG TEMP ripple	mV p-p			50	
40	IRIG TEMP noise	mV p-p			100	

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JDC
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JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.b (22.c)	Difference be- tween gain at 3 v output and average gain	percent			4	
23.b (22.d)	Difference be- tween gain at 2 v output and average gain	percent			4	
23.b (22.e)	Difference be- tween gain at 1 v output and average gain	percent			4	
23.b (22.f)	Difference be- tween gain at 0 v output and average gain	percent			4	
28	PIPA CAL MOD TEMP at 1280 ohm input (GG6020)	vdc	2.25		2.75	
33	IRIG TEMP output at 2816 ohm input (GG2301T)	vdc	-0.20		+0.20	

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DATA SHEET 11 OF 11

JDC
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JOB SIGNAL CONDITIONER CDU FINE ERROR TESTS - LEM

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
35	IRIG TEMP output at 2384 ohm input	vdc	2.40		2.60	
37	IRIG TEMP output at 2037 ohm input	vdc	4.80		5.20	
39	IRIG TEMP ripple	mV p-p			50	
40	IRIG TEMP noise	mV p-p			100	

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SIGNAL CONDITIONER CONTINUITY TESTS -
JOB LEM

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INITIAL TORR 32500 DS PGS 1

SUBSYSTEM	ASSY.
DESCRIPTION	Pre-installation acceptance testing of hard wired channels in flight qualification or operational LEM signal conditioner.

[illegible]

1. Set crossbar to 15 (800 CPS 5% PH B channel).
2. Press X BAR INPUT and PUSH TO ADVANCE.
3. Adjust 3200/800 CPS ADJUST until DVM indicates 5 (+0,5) vrms. Record DVM indication.
4. Press PUSH TO INITIATE on.
5. Press X BAR OUTPUT and record difference between DVM indication and value recorded in step 3.
6. Set crossbar to 16 (800 CPS 5% PH A channel) and repeat steps 2 through 5.
7. Set crossbar to 57 (+4 VDC TP channel).
8. Press X BAR INPUT and PUSH TO ADVANCE.
9. Adjust DC SCALER until DVM indicates:

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EQUIPMENT TEST
DATA SHEET 1 OF 1

SIGNAL CONDITIONER CONTINUITY TESTS - LEM

<u>ASSEMBLY UNDER TEST</u>				<u>TEST HISTORY</u>			
TITLE _____		DATE _____		START _____		END _____	
SER. NO. _____		TIME _____		START _____		END _____	
DWG _____		REV. _____		TOTAL ELAPSED _____		SITE / LOCATION _____	
<u>MAJOR GROUND SUPPORT EQUIPMENT</u>							
NAME _____				SER. NO. _____			
NAME _____				SER. NO. _____			
CAL DATE _____				CAL DATE _____			
CONDUCTED BY _____				APPROVED BY _____			
NAME/AFFILIATION _____				NAME/AFFILIATION _____			

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
3	800 CPS 5% PH B input	v _{rms}	4.50		5.50	
5	Difference between 800 CPS 5% PH B input and output	v _{rms}			0.10	
6 (3)	800 CPS 5% PH A input	v _{rms}	4.50		5.50	
6 (5)	Difference between 800 CPS 5% PH A input and output	v _{rms}			0.10	
9	+4 VDC TP input	v _{dc}	4.50		5.50	
11	Difference between +4 VDC TP input and output	v _{dc}			0.10	
14	Continuity test input	v _{dc}				
15	Difference between continuity test input and output	v _{dc}			1.0	

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SUBSYSTEM DESCRIPTION Preparation for checkout of Blk I (100 series) signal conditioner.

Rev.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES	PROCUREMENT
A	11-16-67	35044	1,3,4	JDC MIT EA	specs 1007662, 1007663, 1007664, 1007665, 1007666, 1007668 and 2016145	
					IMPORTANT	
					INTERVAL	
					TOOLS AND MATERIAL	See below

TOOLS AND MATERIAL:

NOTE: Commercial test equipment equivalent to the listed below may be used.

- SCA/PSAAM calibration and test console (SPCU), 2900895-011, 2900895-021, or 2900895-031
- Test interconnect cable, 2901220
- Power supply Invertron, Behlman 161A
- Plug-in oscillator, Behlman OSC-2-45/5000

- Power supply, Trygon T50-2
- Audio oscillator, Hewlett-Packard 200CD
- Amplifier, McIntosh MC240
- Differential voltmeter, Fluke 803B (DVM)
- Decade resistance box, Rubicon 1015

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- Counter, Beckman 7350A
Alternate: Computer Measurements 527B
- Oscilloscope, Tektronix 545A
Alternate: Tektronix 547
- Dual trace preamplifier, Tektronix type 1A1 or CA

NOTE: The following notes apply throughout signal conditioner tests.

- Pushbutton nomenclature is abbreviated. As an example, Press SCOPE means press SCOPE pushbutton until it lights. Press X BAR INPUT means press X BAR INPUT/X BAR OUTPUT pushbutton until X BAR INPUT segment lights.
- Maintain each pushbutton setting and voltage adjustment until directed otherwise.

A. PREPARATION

CAUTION: Equipment must be turned off whenever power connections are being made.

DC SCALER
DC ADJUST
3200/800 CPS ADJUST.

- Install following plug-in cards in INPUT/OUTPUT PANEL:

INPUT/OUTPUT connector	Card
J10 & J11	20
J12 & J13	23
J14 & J15	24
J16 & J17	21
J18 & J19	22
J20 & J21	25
J22 & J23	13
J24 & J25	--
J26 & J27	--
J28 & J29	--
J30 & J31	--
J32 & J33	19
J34 & J35	26
J36 & J37	--
J38 & J39	28

DATE

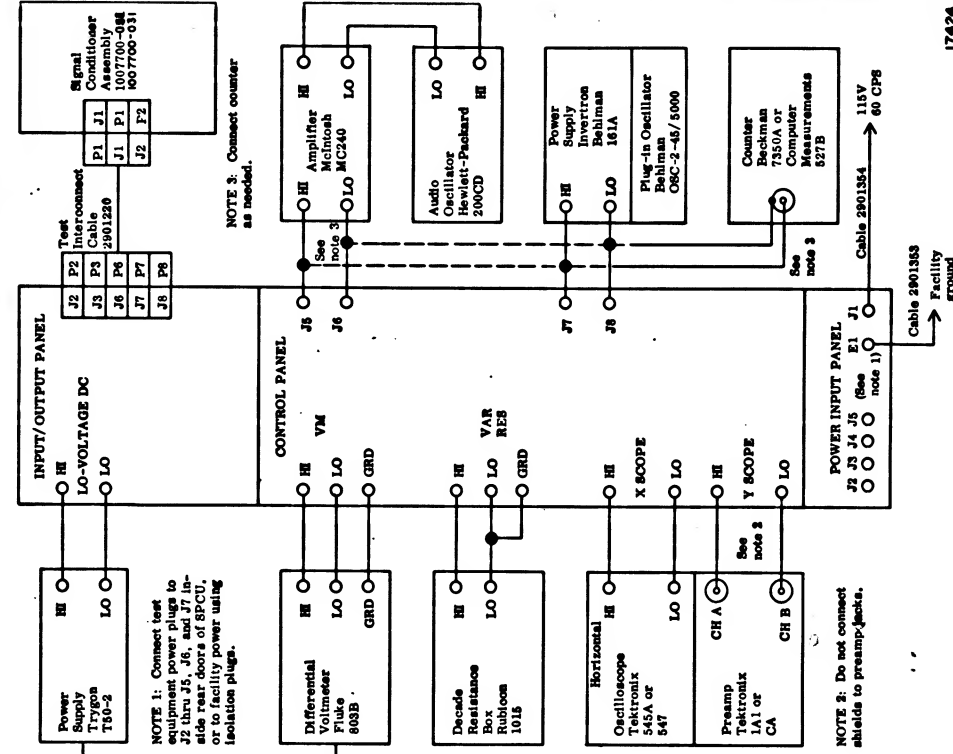


Figure 1. Test Setup

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- Set wall power breaker to ON.
- Turn on all test equipment. Allow 30 minute warmup.
- Press POWER ON on VOLT-METER on, and X BAR OUTPUT.
- Set crossbar to 60 (+20 VDC CONDITIONING).
- Press PUSH TO ADVANCE.
- Adjust DC ADJUST until DVM indicates 20 (+0.2) vdc.

NOTE: Step 12 oscilloscope settings must be maintained throughout signal conditioner tests.

- Set oscilloscope controls as follows:
MODE switch to ADDED
CH A POLARITY to NORMAL
CH B POLARITY to INVERTED.

B. PROCEDURE

- Disconnect MC240 amplifier from J5 and J6 on CONTROL PANEL.
- Connect DVM and counter to MC240 amplifier output.

- Adjust audio oscillator and MC240 amplifier for 28 (+0.28) vrms, 800 (+0.8) cps.
- Switch off amplifier and connect it to J5 and J6 as shown in test setup.
- Connect DVM to CONTROL PANEL as shown in test setup.
- Press 800 CPS PH GEN, 800 ~EXC #1 FIXED, and 800 ~EXC #2 FIXED.
- Set crossbar to 10 (800 CPS 28 V from MC240 amplifier).
- Press PUSH TO ADVANCE and PUSH TO INITIATE on.

CAUTION: To prevent damage to signal conditioner do not allow MC240 amplifier output to exceed 28 (+0.28) vrms.

- Switch on MC240 amplifier. Adjust audio oscillator and amplifier until DVM indicates 28 (+0.28) vrms, and counter indicates 800 (+0.8) cps. Record indications.
- Press NORMAL, and VOLTMETER on.

Rev. Let.	Date	TDR NO.	PAGES REVISED	APPROVAL	REFERENCES	Procurement
			JDC	MIT	NASA	specs 1007682, 1007683, 1007684, 1007686, 1007686, and 1007688
						IMPORTANT
						INTERVAL
						TOOLS AND MATERIAL
						See below

TOOLS AND MATERIAL:

1. SCA/PSAAM calibration and test console (SPCU), 2900895-011 or 2900895-021
 2. Test interconnect cable, 2901220
 3. Power supply Invertron, Behlman 161A
 4. Plug-in oscillator, Behlman OSC-2-45/5000
5. Power supply, Trygon TS0-2
 6. Audio oscillator, Hewlett-Packard 200CD
 7. Amplifier, McIntosh MC240
 8. Differential voltmeter, Fluke 803B (DVM)
 9. Decade resistance box, Rubicon 1015

VERIFICATION WITH SIDL REQUIRED BEFORE USE

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10. Counter, Beckman 7350A
Alternate: Computer Measurements 527B
 11. Oscilloscope, Tektronix 545A
Alternate: Tektronix 547
 12. Dual trace preamplifier, Tektronix type 1A1 or CA
- NOTE: The following notes apply throughout signal conditioner tests.
1. Pushbutton nomenclature is abbreviated. As an example, Press SCOPE on means press SCOPE pushbutton until it lights. Press X BAR INPUT means press X BAR INPUT/X BAR OUTPUT pushbutton until X BAR INPUT segment lights.
 2. Maintain each pushbutton setting and voltage adjustment until directed otherwise.

DC SCALER

DC ADJUST
3200/800 CPS ADJUST.

INPUT/OUTPUT PANEL:

INPUT/OUTPUT connector	Card
J10 & J11	20
J12 & J13	23
J14 & J15	24
J16 & J17	21
J18 & J19	22
J20 & J21	25
J22 & J23	13
J24 & J25	--
J26 & J27	--
J28 & J29	--
J30 & J31	--
J32 & J33	19
J34 & J35	26
J36 & J37	--
J38 & J39	28

A. PREPARATION

CAUTION: Equipment must be turned off whenever power connections are being made.

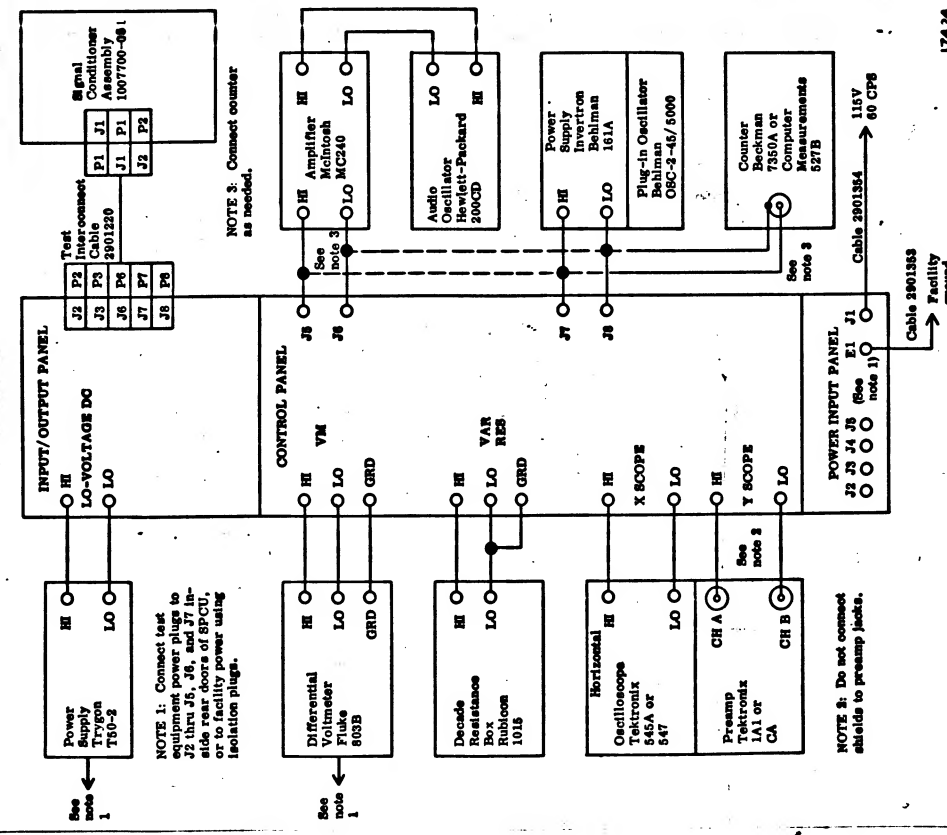


Figure 1. Test Setup

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3. Adjust audio oscillator and MC240 amplifier for 28 (± 0.28) vrms, 800 (± 0.8) cps.
 4. Switch off amplifier and connect it to J5 and J6 as shown in test setup.
 5. Connect DVM to CONTROL PANEL as shown in test setup.
 6. Press 800 CPS PH GEN, 800 ~ EXC #1 FIXED, and 800 ~ EXC #2 FIXED.
 7. Set crossover to 10 (800 CPS 28 V from MC240 amplifier).
 8. Press PUSH TO ADVANCE and PUSH TO INITIATE on.
 9. Switch to MC240 amplifier. Adjust audio oscillator and amplifier until DVM indicates 28 (± 0.28) vrms, and counter indicates 800 (± 0.8) cps. Record indications.
 10. Press NORMAL, and VOLTMETER on.
- CAUTION: To prevent damage to signal conditioner do not allow MC240 amplifier output to exceed 28 (± 0.28) vrms.
- CAUTION: To prevent damage to signal conditioner do not allow MC240 amplifier output to exceed 28 (± 0.28) vrms.
- CAUTION: To prevent damage to signal conditioner do not allow MC240 amplifier output to exceed 28 (± 0.28) vrms.
- CAUTION: To prevent damage to signal conditioner do not allow MC240 amplifier output to exceed 28 (± 0.28) vrms.

SUBSYSTEM ASSY.

DESCRIPTION Preparation for checkout of Blk I (100 series) signal conditioner.

Rev. Let.	Date	TORR NO.	PAGES REVISED	APPROVAL	REFERENCES	Procurement specs
			JDC	MIT	NASA	1007662, 1007663
						1007664, 1007665, 1007666, and 1007668
						IMPORTANT
						INTERVAL
						TOOLS AND MATERIAL
						(See below)

TOOLS AND MATERIAL:

1. SCA/PSAAM calibration and test console (SPCU), 2900895-011 or 2900895-021
2. Test interconnect cable, 2901220
3. Power supply inverter, Behlman 161A
4. Plug-in oscillator, Behlman OSC-2-45/5000

5. Power supply, Trygon T50-2

6. Audio oscillator, Hewlett-Packard 200CD
7. Amplifier, McIntosh MC240
8. Differential voltmeter, Fluke 803B (DVM)
9. Decade resistance box, Rubicon 1015

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SUBSYSTEM ASSY.

DESCRIPTION

10. Counter, Beckman 7350A Alternate: Computer Measurements 527B
11. Oscilloscope, Tektronix 545A Alternate: Tektronix 547
12. Dual trace preamplifier, Tektronix type LA1 or CA

NOTE: The following notes apply throughout signal conditioner tests.

1. Pushbutton nomenclature is abbreviated. As an example, Press SCOPE on means press SCOPE pushbutton until it lights. Press X BAR INPUT means press X BAR INPUT/X BAR OUTPUT pushbutton until X BAR INPUT segment lights.
2. Maintain each pushbutton setting and voltage adjustment until directed otherwise.

A. PREPARATION

CAUTION: Equipment must be turned off whenever power connections are being made.

5. Install following plug-in cards in INPUT/OUTPUT PANEL:

INPUT/OUTPUT connector	Card
J10 & J11	20
J12 & J13	23
J14 & J15	24
J16 & J17	21
J18 & J19	22
J20 & J21	25
J22 & J23	13
J24 & J25	--
J26 & J27	--
J28 & J29	--
J30 & J31	--
J32 & J33	19
J34 & J35	26
J36 & J37	--
J38 & J39	28

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SUBSYSTEM ASSY.

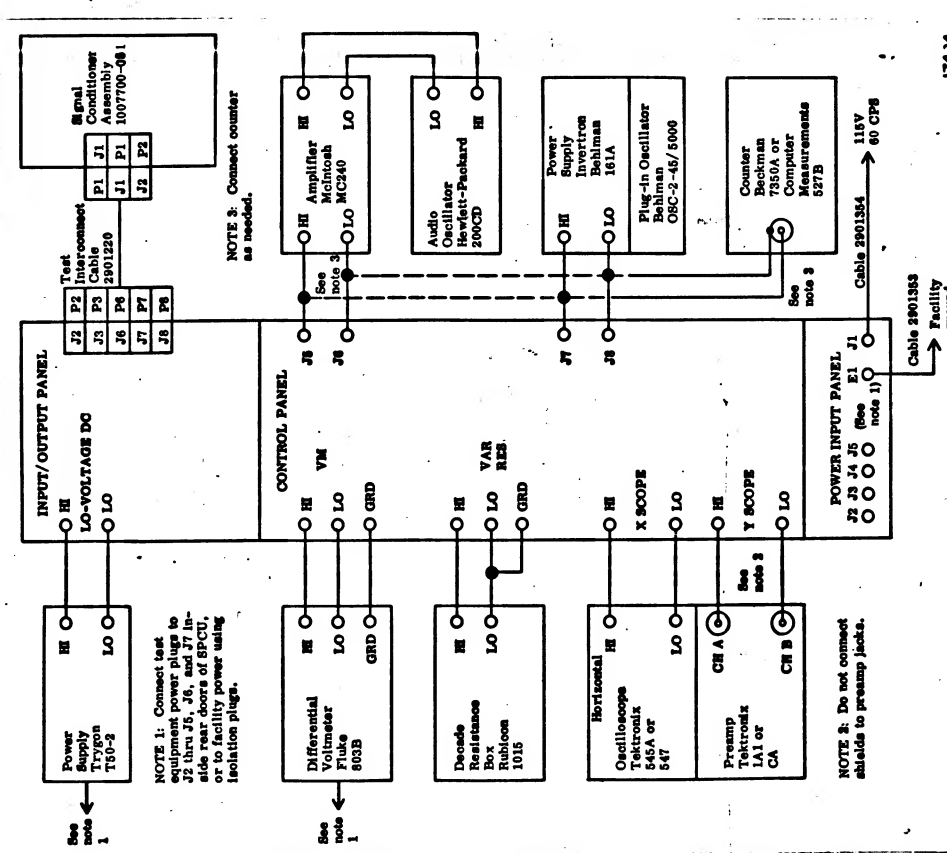


Figure 1. Test Setup

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SUBSYSTEM ASSY.

3. Adjust audio oscillator and MC240 amplifier for 28 (± 0.28) vrms, 800 (± 0.8) cps.
4. Switch off amplifier and connect it to J5 and J6 as shown in test setup.
5. Connect DVM to CONTROL PANEL as shown in test setup.
6. Press 800 CPS PH GEN, 800 ~EXC #1 FIXED, and 800 ~ EXC #2 FIXED.
7. Set crossover to 10 (800 CPS 28 V from MC240 amplifier).
8. Press PUSH TO ADVANCE and PUSH TO INITIATE on.

CAUTION: To prevent damage to signal conditioner do not allow MC240 amplifier output to exceed 28 (± 0.28) vrms.

9. Switch to MC240 amplifier. Adjust audio oscillator and amplifier until DVM indicates 28 (± 0.28) vrms, and counter indicates 800 (± 0.8) cps. Record indications.
10. Press NORMAL, and VOLTMETER on.

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REV. -
INITIAL TDRR 329:8

REV.
INITIAL TORR 329.8

BLK I (100 series)

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NO. 18851 ^{JDC}
REV. -
INITIAL TORR 32728

REV.
INITIAL TORR 32928

BLK I (100 series)

DATE _____

SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of 800 cps channels in Blk I (100 series) signal conditioner.

ASSY

Rev. Let.	Date	TDR NO.	PAGES REVISED	APPROVAL	REFERENCES
			JDC	MIT	spec 1007664, 1007665, 1007668
			D.S.		
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

- NOTE: Table I is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.
- Set crossbar to 17 (SIN AIG 1X channel).
 - Set 800 CPS PHASE GENERATOR to 5 (± 0.1 degrees).
 - Press PUSH TO ADVANCE and PUSH TO INITIATE on.
 - Set 3200/800 CPS ADJUST to 0.00000. Record value and polarity of offset voltage indicated on DVM.
 - Algebraically add value recorded in step 4 to ± 2.5 and record.
 - Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 5.
 - Press X BAR INPUT. Record as input voltage indicated on DVM.

VERIFICATION WITH SID REQUIRED BEFORE USE

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ASSY

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins			Signal Conditioner Output Pins	Signal Conditioner Module
		High	Low	High		
17	SIN AIG 1X	J1-1	J1-23	P1-90	P1-71	Gimbal resolver
18	COS AIG 1X	J1-2	J1-3	P1-131	P1-71	
19	SIN AMG 1X	J1-24	J1-42	P1-91	P1-71	
20	COS AMG 1X	J1-25	J1-44	P1-130	P1-71	
21	SIN AOG 1X	J1-4	J1-26	P1-108	P1-71	
22	COS AOG 1X	J1-25	J1-27	P1-110	P1-71	
23	IG CDU 1X ERROR	J1-59	J1-41	P1-88	P1-71	CDU resolver
24	MG CDU 1X ERROR	J1-60	J1-43	P1-107	P1-71	
25	OG CDU 1X ERROR	J1-77	J1-61	P1-128	P1-71	
27	TRUNNION CDU 16X ERROR	J1-19	J1-56	P1-38	P1-71	
49	-28 VDC SUPPLY	J1-66	J1-83	P1-89	P1-71	
04	SXT TRN MDA IN BUFFERED	J1-73	J1-56	P1-20	P1-71	Optics
05	SXT SHAFT MDA IN BUFFERED	J1-74	J1-56	P1-22	P1-71	
15	SXT TRN TACH FDBK BUFFERED	J1-21	J1-56	P1-56	P1-71	
16	SXT SHAFT TACH FDBK BUFFERED	J1-57	J1-56	P1-40	P1-71	
31	SHAFT CDU 16X ERROR BUFFERED	J1-20	J1-56	P1-58	P1-71	

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1007664
1007665

SUBSYSTEM

8. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
9. Measure peak-to-peak ripple voltage on oscilloscope and record.
10. Press SCOPE off and VOLTMETER on.

DVM indicates output voltage listed below. Perform steps 12 and 13 for each voltage. Set 800 CPS PHASE GENERATOR to 185 (± 0.1 degrees to obtain negative outputs. ADJUST for output:

Test	XBAR	Channel tested
a.	18	COS AIG 1X
b.	19	SIN AMG 1X
c.	20	COS AMG 1X
d.	21	SIN AOG 1X
e.	22	COS AOG 1X

19. Set crossbar to 23 (IG CDU 1X ERROR channel).

20. Press PUSH TO ADVANCE.

21. Set 800 CPS PHASE GENERATOR to 0 (± 0.1 degree).

22. Set 3200/800 CPS ADJUST to 0.00000.

23. Press PUSH TO INITIATE on. Record value and polarity of offset voltage indicated on DVM.

24. Algebraically add value recorded in step 23 to ± 2.5 and record.
25. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 24.
26. Press X BAR INPUT and record as input voltage indicated on DVM.
27. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
28. Measure peak-to-peak ripple voltage on oscilloscope and record.
13. Press X BAR OUTPUT and return to step 11 until all tests are completed.
14. Compute and record gains a through f using the following equation for each gain:
- $$\text{GAIN} = \frac{E_{\text{out}}(\text{step 11}) - E_{\text{offset}}(\text{step 4})}{E_{\text{in}}(\text{step 12})}$$
15. Add gains recorded in step 14, divide by 6 to find average gain, and record average.
16. Compute and record the percentage of difference between each gain, a through f, and average gain.

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SUBSYSTEM

29. Press SCOPE off and VOLTMETER on.
30. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Perform steps 31 and 32 for each voltage. Set 800 CPS PHASE GENERATOR to 180 (± 0.1 degrees to obtain negative outputs. ADJUST for output:

Test	XBAR	Channel tested
a.	24	MG CDU 1X ERROR
b.	25	OG CDU 1X ERROR

37. Set crossbar to 99 (± 28 VDC OPTICS power).

38. Press X BAR OUTPUT and PUSH TO ADVANCE.

39. Measure and record dc optics operate voltage indicated on DVM.

40. Press 800~EXC #1 FIXED.

41. Set 800 CPS PHASE GENERATOR to 180 (± 0.1 degrees).

42. Set 3200/800 CPS ADJUST to 0.00000.

43. Set crossbar to 27 (TRUNNION CDU 16X ERROR channel).

44. Press PUSH TO ADVANCE.

45. Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.

46. Algebraically add value recorded in step 45 to ± 2.5 and record.
47. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 46.
48. Press X BAR INPUT and record as input voltage indicated on DVM.
49. Press X BAR OUTPUT.
50. Adjust 3200/800 CPS ADJUST until DVM indicates 2.5 (± 0.001 vdc).
51. Press VOLTMETER off and SCOPE on.
31. Press X BAR INPUT. Measure and record as input voltage indicated on DVM for tests a through f.
32. Press X BAR OUTPUT and return to step 30 until all tests are completed.
33. Compute and record gains a through f, using the following equation for each gain:
- $$\text{GAIN} = \frac{E_{\text{out}}(\text{step 30}) - E_{\text{offset}}(\text{step 23})}{E_{\text{in}}(\text{step 31})}$$

34. Add gains recorded in step 33, divide by 6 to find average gain, and record average.
35. Compute and record the percentage of difference between each gain, a through f, and the average gain.
36. Set crossbar to next position, listed below, and repeat steps 20 through 35.

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SIGNAL CONDITIONER 800 CPS CHANNEL
JOB TESTS - BLK I (100 series)

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SUBSYSTEM	ASSY
52. Measure peak-to-peak ripple voltage on oscilloscope and record.	62. Set DC SCALER to 0.00000.
53. Press SCOPE off and VOLTMETER on.	63. Press PUSH TO INITIATE on and observe that DC NEG lights. Record value and polarity of offset voltage indicated on DVM.
54. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Perform steps 55 and 56 for each voltage. Set 800 CPS PHASE GENERATOR to 0 (±0.1) degrees to obtain negative outputs.	CAUTION: To prevent damage to signal condenser do not allow dc voltages to exceed listed values.
Test	64. Adjust T50-2 power supply until voltmeter on T50-2 indicates 35 (±0.1) vdc.
a. Adjust 3200/800 CPS ADJUST for output	65. Adjust DC SCALER until DVM indicates output voltage of 4 (±0.1) vdc.
b. +2.500 (±0.005) vdc	66. Press X BAR INPUT. Record dc input voltage indicated on DVM.
c. +1.500 (±0.005) vdc	67. Press X BAR OUTPUT.
d. +0.500 (±0.005) vdc	68. Adjust DC SCALER until DVM indicates output voltage listed below. Perform steps 69 and 70 for each voltage.
e. -0.500 (±0.005) vdc	Test
f. -1.500 (±0.005) vdc	Adjust DC SCALER for output
55. Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.	a. 5.000 (±0.001) vdc
56. Press X BAR OUTPUT and return to step 54 until all tests are completed.	b. 4.000 (±0.001) vdc
57. Compute and record gains a through f, using following equation for each gain:	c. 3.000 (±0.001) vdc
$GAIN = \frac{E_{out}(\text{step 54}) - E_{offset}(\text{step 45})}{E_{in}(\text{step 55})}$	d. 2.000 (±0.001) vdc
58. Add gains recorded in step 57, divide by 6 to find average gain, and record average.	
59. Compute and record percentage of difference between each gain, a through f, and average gain.	69. Press X BAR INPUT. Measure and record dc input voltage indicated on DVM for tests a through d.
60. Set crossbar to 49 (-28 VDC SUPPLY channel).	70. Press X BAR OUTPUT and return to step 68 until all tests are completed.
61. Press PUSH TO ADVANCE.	71. Compute and record gains a through d, using following equation for each gain:
	$GAIN = \frac{E_{out}(\text{step 68}) - E_{offset}(\text{step 63})}{E_{in}(\text{step 69})}$

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JOB TESTS - BLK I (100 series)

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SUBSYSTEM	ASSY
72. Add gains recorded in step 71, divide by 4 to find average gain, and record average.	Test
73. Compute and record percentage of difference between each gain, a through d, and average gain.	a. Adjust 3200/800 CPS ADJUST for output
74. Set crossbar to 04 (SXT TRN MDA IN BUFFERED channel).	b. +2.500 (±0.005) vdc
75. Press PUSH TO ADVANCE.	c. +1.500 (±0.005) vdc
76. Set 800 CPS PHASE GENERATOR to 0 (±0.1) degree.	d. +0.500 (±0.005) vdc
77. Set 3200/800 CPS ADJUST to 0.00000.	e. -0.500 (±0.005) vdc
78. Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.	f. -1.500 (±0.005) vdc
79. Algebraically add value recorded in step 78 to ±2.5 and record.	86. Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.
80. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 79.	87. Press X BAR OUTPUT and return to step 85 until all tests are completed.
81. Press X BAR INPUT and record ac input voltage indicated on DVM.	88. Compute and record gains a through f, using the following equation for each gain:
82. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.	$GAIN = \frac{E_{out}(\text{step 85}) - E_{offset}(\text{step 78})}{E_{in}(\text{step 86})}$
83. Measure peak-to-peak ripple voltage on oscilloscope and record.	89. Add gains recorded in step 88, divide by 6 to find average gain, and record average.
84. Press SCOPE off and VOLTMETER on.	90. Compute and record percentage of difference between each gain, a through f, and average gain.
85. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Perform steps 86 and 87 for each voltage. Set 800 CPS PHASE GENERATOR to 180 (±0.1) degrees to obtain negative outputs.	91. Set crossbar to next position, listed below, and repeat steps 75 through 90. Continue until all following tests are completed.
Test	Test
a. 05	Channel tested
b. 15	SXT SHAFT MDA IN BUFFERED
c. 16	SXT TRN TACH FDBK BUFFERED
	SXT SHAFT TACH FDBK BUFFERED

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SIGNAL CONDITIONER 800 CPS CHANNEL
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SUBSYSTEM	ASSY
92. Set crossbar to 81 (SHAFT CDU 16X BUFFERED channel).	Test
93. Set 800 CPS PHASE GENERATOR to 0 (±0.1) degree.	Adjust 3200/800 CPS ADJUST for output
94. Set 3200/800 CPS ADJUST to 0.00000.	a. +2.500 (±0.005) vdc
95. Press PUSH TO ADVANCE.	b. +1.500 (±0.005) vdc
96. Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.	c. +0.500 (±0.005) vdc
97. Algebraically add value recorded in step 96 to ±2.5 and record.	d. -0.500 (±0.005) vdc
98. Adjust 3200/800 CPS ADJUST until DVM indicates value recorded in step 97.	e. -1.500 (±0.005) vdc
99. Press X BAR INPUT and record ac input voltage indicated on DVM.	f. -2.500 (±0.005) vdc
100. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.	104. Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.
101. Measure peak-to-peak ripple voltage on oscilloscope and record.	105. Press X BAR OUTPUT and return to step 103 until all tests are completed.
102. Press SCOPE off and VOLTMETER on.	106. Compute and record gains a through f, using the following equation for each gain:
103. Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Perform steps 104 and 105 for each voltage. Set 800 CPS PHASE GENERATOR to 180 (±0.1) degrees to obtain negative outputs.	$GAIN = \frac{E_{out}(\text{step 103}) - E_{offset}(\text{step 104})}{E_{in}(\text{step 104})}$
	107. Add gains recorded in step 106, divide by 6 to find average gain, and record average.
	108. Compute and record percentage of difference between each gain, a through f, and average gain.

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS BLK I (100 series)

ASSEMBLY UNDER TEST				TEST HISTORY			
TITLE _____		DATE _____		START _____		END _____	
SER. NO. _____		DWG _____		REV. _____		SITE / LOCATION _____	
MAJOR GROUND SUPPORT EQUIPMENT							
NAME _____		SER. NO. _____		CAL DATE _____			
NAME _____		SER. NO. _____		CAL DATE _____			
CONDUCTED BY _____				APPROVED BY _____			
NAME/AFFILIATION _____				NAME/AFFILIATION _____			
JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
4	SIN AIG 1X offset (CG2112)	mV	-40*				+40*
<p style="text-align: center;">NOTE</p> <p>Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.</p>							

* Most output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage for a channel is listed as 0 (±40) mV, add ±2.5 to each output for that channel to determine output voltages in actual system operation.

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
5	Algebraically add +2.5 to offset	vdc				
7	SIN AIG 1X input	vrms	18		22	
9	SIN AIG 1X ripple	mv p-p			15	
12.a	SIN AIG 1X input at +2.5 v output	vrms				
12.b	SIN AIG 1X input at +1.5 v output	vrms				
12.c	SIN AIG 1X input at +0.5 v output	vrms				
12.d	SIN AIG 1X input at -0.5 v output	vrms				
12.e	SIN AIG 1X input at -1.5 v output	vrms				
12.f	SIN AIG 1X input at -2.5 v output	vrms				
14.a	SIN AIG 1X gain at +2.5 v output	v/v				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
14.b	SIN AIG 1X gain at +1.5 v output	v/v				
14.c	SIN AIG 1X gain at +0.5 v output	v/v				
14.d	SIN AIG 1X gain at -0.5 v output	v/v				
14.e	SIN AIG 1X gain at -1.5 v output	v/v				
14.f	SIN AIG 1X gain at -2.5 v output	v/v				
15	SIN AIG 1X average gain	v/v				
16.a	Difference between gain at +2.5 v output and average gain	percent			5	
16.b	Difference between gain at +1.5 v output and average gain	percent			5	
16.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
16.d	Difference between gain at -0.5 v output and average gain	percent			5	
16.e	Difference between gain at -1.5 v output and average gain	percent			5	
16.f	Difference between gain at -2.5 v output and average gain	percent			5	
18.a (4)	COS AIG 1X offset (CG2113)	mv	-40		+40	
18.a (5)	Algebraically add +2.5 to offset	vdc				
18.a (7)	COS AIG 1X input	vrms	18		22	
18.a (9)	COS AIG 1X ripple	mv p-p			15	
18.a (12.a)	COS AIG 1X input at +2.5 v output	vrms				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
18.a (12.b)	COS AIG 1X input at +1.5 v output	vrms				
18.a (12.c)	COS AIG 1X input at +0.5 v output	vrms				
18.a (12.d)	COS AIG 1X input at -0.5 v output	vrms				
18.a (12.e)	COS AIG 1X input at -1.5 v output	vrms				
18.a (12.f)	COS AIG 1X input at -2.5 v output	vrms				
18.a (14.a)	COS AIG 1X gain at +2.5 v output	v/v				
18.a (14.b)	COS AIG 1X gain at +1.5 v output	v/v				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
5	Algebraically add +2.5 to offset	vdc				
7	SIN AIG IX input	vrms	18		22	
9	SIN AIG IX ripple	mv p-p			15	
12.a	SIN AIG IX input at +2.5 v output	vrms				
12.b	SIN AIG IX input at +1.5 v output	vrms				
12.c	SIN AIG IX input at +0.5 v output	vrms				
12.d	SIN AIG IX input at -0.5 v output	vrms				
12.e	SIN AIG IX input at -1.5 v output	vrms				
12.f	SIN AIG IX input at -2.5 v output	vrms				
14.a	SIN AIG IX gain at +2.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
14.b	SIN AIG IX gain at +1.5 v output	v/v				
14.c	SIN AIG IX gain at +0.5 v output	v/v				
14.d	SIN AIG IX gain at -0.5 v output	v/v				
14.e	SIN AIG IX gain at -1.5 v output	v/v				
14.f	SIN AIG IX gain at -2.5 v output	v/v				
15	SIN AIG IX average gain	v/v				
16.a	Difference between gain at +2.5 v output and average gain	percent			5	
16.b	Difference between gain at +1.5 v output and average gain	percent			5	
16.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
16.d	Difference between gain at -0.5 v output and average gain	percent			5	
16.e	Difference between gain at -1.5 v output and average gain	percent			5	
16.f	Difference between gain at -2.5 v output and average gain	percent			5	
18.a (4)	COS AIG IX offset (CC2113)	mv	-40		+40	
18.a (6)	Algebraically add +2.5 to offset	vdc				
18.a (7)	COS AIG IX input	vrms	18		22	
18.a (9)	COS AIG IX ripple	mv p-p			15	
18.a (12.a)	COS AIG IX input at +2.5 v output	vrms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (12.b)	COS AIG IX input at +1.5 v output	vrms				
18.a (12.c)	COS AIG IX input at +0.5 v output	vrms				
18.a (12.d)	COS AIG IX input at -0.5 v output	vrms				
18.a (12.e)	COS AIG IX input at -1.5 v output	vrms				
18.a (12.f)	COS AIG IX input at -2.5 v output	vrms				
18.a (14.a)	COS AIG IX gain at +2.5 v output	v/v				
18.a (14.b)	COS AIG IX gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (14.c)	COS AIG 1X gain at +0.5 v output	v/v				
18.a (14.d)	COS AIG 1X gain at -0.5 v output	v/v				
18.a (14.e)	COS AIG 1X gain at -1.5 v output	v/v				
18.a (14.f)	COS AIG 1X gain at -2.5 v output	v/v				
18.a (15)	COS AIG 1X average gain	v/v				
18.a (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.a (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.a (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.a (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.a (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.b (4)	SIN AMG 1X offset (CG2142)	mv	-40		+40	
18.b (5)	Algebraically add +2.5 to offset	vdc				
18.b (7)	SIN AMG 1X input	v rms	18		22	
18.b (9)	SIN AMG 1X ripple	mv p-p			15	
18.b (12.a)	SIN AMG 1X input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (12.b)	SIN AMG 1X input at +1.5 v output	v rms				
18.b (12.c)	SIN AMG 1X input at +0.5 v output	v rms				
18.b (12.d)	SIN AMG 1X input at -0.5 v output	v rms				
18.b (12.e)	SIN AMG 1X input at -1.5 v output	v rms				
18.b (12.f)	SIN AMG 1X input at -2.5 v output	v rms				
18.b (14.a)	SIN AMG 1X gain at +2.5 v output	v/v				
18.b (14.b)	SIN AMG 1X gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (14.c)	SIN AMG 1X gain at +0.5 v output	v/v				
18.b (14.d)	SIN AMG 1X gain at -0.5 v output	v/v				
18.b (14.e)	SIN AMG 1X gain at -1.5 v output	v/v				
18.b (14.f)	SIN AMG 1X gain at -2.5 v output	v/v				
18.b (15)	SIN AMG 1X average gain	v/v				
18.b (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.b (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.b (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (14.c)	COS AIG 1X gain at +0.5 v output	v/v				
18.a (14.d)	COS AIG 1X gain at -0.5 v output	v/v				
18.a (14.e)	COS AIG 1X gain at -1.5 v output	v/v				
18.a (14.f)	COS AIG 1X gain at -2.5 v output	v/v				
18.a (15)	COS AIG 1X average gain	v/v				
18.a (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.a (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.a (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.a (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.a (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.a (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.b (4)	SIN AMG 1X offset (CG2142)	mv	-40		+40	
18.b (5)	Algebraically add +2.5 to offset	vdc				
18.b (7)	SIN AMG 1X input	v rms	18		22	
18.b (9)	SIN AMG 1X ripple	mv p-p			15	
18.b (12.a)	SIN AMG 1X input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (12.b)	SIN AMG 1X input at +1.5 v output	v rms				
18.b (12.c)	SIN AMG 1X input at +0.5 v output	v rms				
18.b (12.d)	SIN AMG 1X input at -0.5 v output	v rms				
18.b (12.e)	SIN AMG 1X input at -1.5 v output	v rms				
18.b (12.f)	SIN AMG 1X input at -2.5 v output	v rms				
18.b (14.a)	SIN AMG 1X gain at +2.5 v output	v/v				
18.b (14.b)	SIN AMG 1X gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (14.c)	SIN AMG 1X gain at +0.5 v output	v/v				
18.b (14.d)	SIN AMG 1X gain at -0.5 v output	v/v				
18.b (14.e)	SIN AMG 1X gain at -1.5 v output	v/v				
18.b (14.f)	SIN AMG 1X gain at -2.5 v output	v/v				
18.b (15)	SIN AMG 1X average gain	v/v				
18.b (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.b (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.b (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.b (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.b (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.o (4)	COS AMG 1X offset (CG2143)	mv	-40		+40	
18.o (5)	Algebraically add +2.5 to offset	vdc				
18.o (7)	COS AMG 1X input	vrms	18		22	
18.o (9)	COS AMG 1X ripple	mv p-p			15	
18.o (12.a)	COS AMG 1X input at +2.5 v output	vrms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.o (12.b)	COS AMG 1X input at +1.5 v output	vrms				
18.o (12.c)	COS AMG 1X input at +0.5 v output	vrms				
18.o (12.d)	COS AMG 1X input at -0.5 v output	vrms				
18.o (12.e)	COS AMG 1X input at -1.5 v output	vrms				
18.o (12.f)	COS AMG 1X input at -2.5 v output	vrms				
18.o (14.a)	COS AMG 1X gain at +2.5 v output	v/v				
18.o (14.b)	COS AMG 1X gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.o (14.o)	COS AMG 1X gain at +0.5v output	v/v				
18.o (14.d)	COS AMG 1X gain at -0.5 v output	v/v				
18.o (14.e)	COS AMG 1X gain at -1.5v output	v/v				
18.o (14.f)	COS AMG 1X gain at -2.5v output	v/v				
18.o (15)	COS AMG 1X average gain	v/v				
18.o (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.o (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.o (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.o (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.o (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.o (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.d (4)	SIN AOG 1X offset (CG2172)	mv	-40		+40	
18.d (5)	Algebraically add +2.5 to offset	vdc				
18.d (7)	SIN AOG 1X input	vrms	18		22	
18.d (9)	SIN AOG 1X ripple	mv p-p			15	
18.d (12.a)	SIN AOG 1X input at +2.5 v output	vrms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.b (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.b (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.b (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.c (4)	COS AMG 1X offset (CG2143)	mv	-40		+40	
18.c (5)	Algebraically add +2.5 to offset	vdc				
18.c (7)	COS AMG 1X input	vrms	18		22	
18.c (9)	COS AMG 1X ripple	mv p-p			15	
18.c (12.a)	COS AMG 1X input at +2.5 v output	vrms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.c (12.b)	COS AMG 1X input at +1.5 v output	vrms				
18.c (12.c)	COS AMG 1X input at +0.5 v output	vrms				
18.c (12.d)	COS AMG 1X input at -0.5 v output	vrms				
18.c (12.e)	COS AMG 1X input at -1.5 v output	vrms				
18.c (12.f)	COS AMG 1X input at -2.5 v output	vrms				
18.c (14.a)	COS AMG 1X gain at +2.5 v output	v/v				
18.c (14.b)	COS AMG 1X gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.c (14.c)	COS AMG 1X gain at +0.5v output	v/v				
18.c (14.d)	COS AMG 1X gain at -0.5 v output	v/v				
18.c (14.e)	COS AMG 1X gain at -1.5v output	v/v				
18.c (14.f)	COS AMG 1X gain at -2.5v output	v/v				
18.c (15)	COS AMG 1X average gain	v/v				
18.c (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.c (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.c (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.c (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.c (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.c (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.d (4)	SIN AOG 1X offset (CG2172)	mv	-40		+40	
18.d (5)	Algebraically add +2.5 to offset	vdc				
18.d (7)	SIN AOG 1X input	vrms	18		22	
18.d (9)	SIN AOG 1X ripple	mv p-p			15	
18.d (12.a)	SIN AOG 1X input at +2.5 v output	vrms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.d (12.b)	SIN AOG IX input at +1.5 v output	vrms				
18.d (12.c)	SIN AOG IX input at +0.5 v output	vrms				
18.d (12.d)	SIN AOG IX input at -0.5 v output	vrms				
18.d (12.e)	SIN AOG IX input at -1.5 v output	vrms				
18.d (12.f)	SIN AOG IX input at -2.5 v output	vrms				
18.d (14.a)	SIN AOG IX gain at +2.5 v output	v/v				
18.d (14.b)	SIN AOG IX gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.d (14.c)	SIN AOG IX gain at +0.5 v output	v/v				
18.d (14.d)	SIN AOG IX gain at -0.5 v output	v/v				
18.d (14.e)	SIN AOG IX gain at -1.5 v output	v/v				
18.d (14.f)	SIN AOG IX gain at -2.5 v output	v/v				
18.d (15)	SIN AOG IX average gain	v/v				
18.d (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.d (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.d (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.d (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.d (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.d (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.e (4)	COS AOG IX offset (CG2173)	mv	-40		+40	
18.e (5)	Algebraically add +2.5 to offset	vdc				
18.e (7)	COS AOG IX input	vrms	18		22	
18.e (9)	COS AOG IX ripple	mv p-p			15	
18.e (12.a)	COS AOG IX input at +2.5 v output	vrms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.e (12.b)	COS AOG IX input at +1.5 v output	vrms				
18.e (12.c)	COS AOG IX input at +0.5 v output	vrms				
18.e (12.d)	COS AOG IX input at -0.5 v output	vrms				
18.e (12.e)	COS AOG IX input at -1.5 v output	vrms				
18.e (12.f)	COS AOG IX input at -2.5 v output	vrms				
18.e (14.a)	COS AOG IX gain at +2.5 v output	v/v				
18.e (14.b)	COS AOG IX gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.d (12.b)	SIN AOG 1X input at +1.5 v output	vrms				
18.d (12.c)	SIN AOG 1X input at +0.5 v output	vrms				
18.d (12.d)	SIN AOG 1X input at -0.5 v output	vrms				
18.d (12.e)	SIN AOG 1X input at -1.5 v output	vrms				
18.d (12.f)	SIN AOG 1X input at -2.5 v output	vrms				
18.d (14.a)	SIN AOG 1X gain at +2.5 v output	v/v				
18.d (14.b)	SIN AOG 1X gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.d (14.c)	SIN AOG 1X gain at +0.5 v output	v/v				
18.d (14.d)	SIN AOG 1X gain at -0.5 v output	v/v				
18.d (14.e)	SIN AOG 1X gain at -1.5 v output	v/v				
18.d (14.f)	SIN AOG 1X gain at -2.5 v output	v/v				
18.d (15)	SIN AOG 1X average gain	v/v				
18.d (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.d (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.d (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.d (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.d (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.d (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
18.e (4)	COS AOG 1X offset (CG2173)	mv	-40		+40	
18.e (5)	Algebraically add +2.5 to offset	vdc				
18.e (7)	COS AOG 1X input	vrms	18		22	
18.e (9)	COS AOG 1X ripple	mv p-p			15	
18.e (12.a)	COS AOG 1X input at +2.5 v output	vrms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.e (12.b)	COS AOG 1X input at +1.5 v output	vrms				
18.e (12.c)	COS AOG 1X input at +0.5 v output	vrms				
18.e (12.d)	COS AOG 1X input at -0.5 v output	vrms				
18.e (12.e)	COS AOG 1X input at -1.5 v output	vrms				
18.e (12.f)	COS AOG 1X input at -2.5 v output	vrms				
18.e (14.a)	COS AOG 1X gain at +2.5 v output	v/v				
18.e (14.b)	COS AOG 1X gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.e (14.c)	COS AOG 1X gain at +0.5 v output	v/v				
18.e (14.d)	COS AOG 1X gain at -0.5 v output	v/v				
18.e (14.e)	COS AOG 1X gain at -1.5 v output	v/v				
18.e (14.f)	COS AOG 1X gain at -2.5 v output	v/v				
18.e (15)	COS AOG 1X average gain	v/v				
18.e (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.e (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.e (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC
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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.e (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.e (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.e (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
23	IG CDU 1X ERROR offset (CG2206)	mv	-40		+40	
24	Algebraically add +2.5 to offset	vdc				
26	IG CDU 1X ERROR Input	v rms	6.750		8.250	
28	IG CDU 1X ERROR ripple	mv p-p			15	
31.a	IG CDU 1X ERROR Input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC
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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
31.b	IG CDU 1X ERROR Input at +1.5 v output	v rms				
31.c	IG CDU 1X ERROR Input at +0.5 v output	v rms				
31.d	IG CDU 1X ERROR Input at -0.5 v output	v rms				
31.e	IG CDU 1X ERROR Input at -1.5 v output	v rms				
31.f	IG CDU 1X ERROR Input at -2.5 v output	v rms				
33.a	IG CDU 1X ERROR gain at +2.5 v output	v/v				
33.b	IG CDU 1X ERROR gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC
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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
33.o	IG CDU 1X ERROR gain at +0.5 v output	v/v				
33.d	IG CDU 1X ERROR gain at -0.5 v output	v/v				
33.e	IG CDU 1X ERROR gain at -1.5 v output	v/v				
33.f	IG CDU 1X ERROR gain at -2.5 v output	v/v				
34	IG CDU 1X ERROR average gain	v/v				
35.a	Difference between gain at +2.5 v output and average gain	percent			5	
35.b	Difference between gain at +1.5 v output and average gain	percent			5	
35.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.e (14.c)	COS AOG 1X gain at +0.5 v output	v/v				
18.e (14.d)	COS AOG 1X gain at -0.5 v output	v/v				
18.e (14.e)	COS AOG 1X gain at -1.5 v output	v/v				
18.e (14.f)	COS AOG 1X gain at -2.5 v output	v/v				
18.e (15)	COS AOG 1X average gain	v/v				
18.e (16.a)	Difference between gain at +2.5 v output and average gain	percent			5	
18.e (16.b)	Difference between gain at +1.5 v output and average gain	percent			5	
18.e (16.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
18.e (16.d)	Difference between gain at -0.5 v output and average gain	percent			5	
18.e (16.e)	Difference between gain at -1.5 v output and average gain	percent			5	
18.e (16.f)	Difference between gain at -2.5 v output and average gain	percent			5	
23	IG CDU 1X ERROR offset (CG2208)	mv	-40		+40	
24	Algebraically add +2.5 to offset	vdv				
26	IG CDU 1X ERROR Input	v rms	6.750		8.250	
28	IG CDU 1X ERROR ripple	mv p-p			15	
31.a	IG CDU 1X ERROR Input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
31.b	IG CDU 1X ERROR Input at +1.5 v output	v rms				
31.c	IG CDU 1X ERROR Input at +0.5 v output	v rms				
31.d	IG CDU 1X ERROR Input at -0.5 v output	v rms				
31.e	IG CDU 1X ERROR Input at -1.5 v output	v rms				
31.f	IG CDU 1X ERROR Input at -2.5 v output	v rms				
33.a	IG CDU 1X ERROR gain at +2.5 v output	v/v				
33.b	IG CDU 1X ERROR gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
33.e	IG CDU 1X ERROR gain at +0.5 v output	v/v				
33.d	IG CDU 1X ERROR gain at -0.5 v output	v/v				
33.e	IG CDU 1X ERROR gain at -1.5 v output	v/v				
33.f	IG CDU 1X ERROR gain at -2.5 v output	v/v				
34	IG CDU 1X ERROR average gain	v/v				
35.a	Difference between gain at +2.5 v output and average gain	percent			5	
35.b	Difference between gain at +1.5 v output and average gain	percent			5	
35.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
35.d	Difference between gain at -0.5 v output and average gain	percent			5	
35.e	Difference between gain at -1.5 v output and average gain	percent			5	
35.f	Difference between gain at -2.5 v output and average gain	percent			5	
36.a (23)	MG CDU IX ERROR offset (CG2236)	mv	-40		+40	
36.a (24)	Algebraically add +2.5 to offset	vdc				
36.a (26)	MG CDU IX ERROR input	v rms	6.750		8.250	
36.a (28)	MG CDU IX ERROR ripple	mv p-p			15	
36.a (31.a)	MG CDU IX ERROR input at +2.5 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.a (31.b)	MG CDU IX ERROR input at +1.5 v output	v rms				
36.a (31.c)	MG CDU IX ERROR input at +0.5 v output	v rms				
36.a (31.d)	MG CDU IX ERROR input at -0.5 v output	v rms				
36.a (31.e)	MG CDU IX ERROR input at -1.5 v output	v rms				
36.a (31.f)	MG CDU IX ERROR input at -2.5 v output	v rms				
36.a (33.a)	MG CDU IX ERROR gain at +2.5 v output	v/v				
36.a (33.b)	MG CDU IX ERROR gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.a (33.c)	MG CDU IX ERROR gain at +0.5 v output	v/v				
36.a (33.d)	MG CDU IX ERROR gain at -0.5 v output	v/v				
36.a (33.e)	MG CDU IX ERROR gain at -1.5 v output	v/v				
36.a (33.f)	MG CDU IX ERROR gain at -2.5 v output	v/v				
36.a (34)	MG CDU IX ERROR average gain	v/v				
36.a (35.a)	Difference between gain at +2.5 v output and average gain	percent			5	
36.a (35.b)	Difference between gain at +1.5 v output and average gain	percent			5	
36.a (35.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.a (35.d)	Difference between gain at -0.5 v output and average gain	percent			5	
36.a (35.e)	Difference between gain at -1.5 v output and average gain	percent			5	
36.a (35.f)	Difference between gain at -2.5 v output and average gain	percent			5	
36.b (23)	OG CDU IX ERROR offset (CG2266)	mv	-40		+40	
36.b (24)	Algebraically add +2.5 to offset	vdc				
36.b (26)	OG CDU IX ERROR input	v rms	6.750		8.250	
36.b (28)	OG CDU IX ERROR ripple	mv p-p			15	
36.b (31.a)	OG CDU IX ERROR input at +2.5 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
35.d	Difference between gain at -0.5 v output and average gain	percent			5	
35.e	Difference between gain at -1.5 v output and average gain	percent			5	
35.f	Difference between gain at -2.5 v output and average gain	percent			5	
36.a (23)	MG CDU 1X ERROR offset (CG2236)	mv	-40		+40	
36.a (24)	Algebraically add +2.5 to offset	vdc				
36.a (25)	MG CDU 1X ERROR input	v rms	6.750		8.250	
36.a (25)	MG CDU 1X ERROR ripple	mv p-p			15	
36.a (31.a)	MG CDU 1X ERROR input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.a (31.b)	MG CDU 1X ERROR input at +1.5 v output	v rms				
36.a (31.c)	MG CDU 1X ERROR input at +0.5 v output	v rms				
36.a (31.d)	MG CDU 1X ERROR input at -0.5 v output	v rms				
36.a (31.e)	MG CDU 1X ERROR input at -1.5 v output	v rms				
36.a (31.f)	MG CDU 1X ERROR input at -2.5 v output	v rms				
36.a (33.a)	MG CDU 1X ERROR gain at +2.5 v output	v/v				
36.a (33.b)	MG CDU 1X ERROR gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.a (33.c)	MG CDU 1X ERROR gain at +0.5 v output	v/v				
36.a (33.d)	MG CDU 1X ERROR gain at -0.5 v output	v/v				
36.a (33.e)	MG CDU 1X ERROR gain at -1.5 v output	v/v				
36.a (33.f)	MG CDU 1X ERROR gain at -2.5 v output	v/v				
36.a (34)	MG CDU 1X ERROR average gain	v/v				
36.a (35.a)	Difference between gain at +2.5 v output and average gain	percent			5	
36.a (35.b)	Difference between gain at +1.5 v output and average gain	percent			5	
36.a (35.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.a (35.d)	Difference between gain at -0.5 v output and average gain	percent			5	
36.a (35.e)	Difference between gain at -1.5 v output and average gain	percent			5	
36.a (35.f)	Difference between gain at -2.5 v output and average gain	percent			5	
36.b (23)	OG CDU 1X ERROR offset (CG2236)	mv	-40		+40	
36.b (24)	Algebraically add +2.5 to offset	vdc				
36.b (26)	OG CDU 1X ERROR input	v rms	6.750		8.250	
36.b (28)	OG CDU 1X ERROR ripple	mv p-p			15	
36.b (31.a)	OG CDU 1X ERROR input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.b (31.b)	OGCDU 1X ERROR input at +1.5 v output	v rms				
36.b (31.c)	OGCDU 1X ERROR input at +0.5 v output	v rms				
36.b (31.d)	OGCDU 1X ERROR input at -0.5 v output	v rms				
36.b (31.e)	OGCDU 1X ERROR input at -1.5 v output	v rms				
36.b (31.f)	OGCDU 1X ERROR input at -2.5 v output	v rms				
36.b (33.a)	OGCDU 1X ERROR gain at +2.5 v output	v/v				
36.b (33.b)	OGCDU 1X ERROR gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.b (33.c)	OGCDU 1X ERROR gain at +0.5 v output	v/v				
36.b (33.d)	OGCDU 1X ERROR gain at -0.5 v output	v/v				
36.b (33.e)	OGCDU 1X ERROR gain at -1.5 v output	v/v				
36.b (33.f)	OGCDU 1X ERROR gain at -2.5 v output	v/v				
36.b (34)	OGCDU 1X ERROR average gain	v/v				
36.b (35.a)	Difference between gain at +2.5 v output and average gain	percent			5	
36.b (35.b)	Difference between gain at +1.5 v output and average gain	percent			5	
36.b (35.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
36.b (35.d)	Difference between gain at -0.5 v output and average gain	percent			5	
36.b (35.e)	Difference between gain at -1.5 v output and average gain	percent			5	
36.b (35.f)	Difference between gain at -2.5 v output and average gain	percent			5	
39	Optics operate voltage	vdc	26		32	
45	TRUN CDU 16X ERROR offset (CG3141)	mv	-40		+40	
46	Algebraically add +2.5 to offset	vdc				
48	TRUN CDU 16X ERROR input	mvrms	45		55	
52	TRUN CDU 16X ERROR ripple	mv p-p			15	
55.a	TRUN CDU 16X ERROR input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
56.b	TRUN CDU 16X ERROR input at +1.5 v output	v rms				
56.c	TRUN CDU 16X ERROR input at +0.5 v output	v rms				
56.d	TRUN CDU 16X ERROR input at -0.5 v output	v rms				
56.e	TRUN CDU 16X ERROR input at -1.5 v output	v rms				
56.f	TRUN CDU 16X ERROR input at -2.5 v output	v rms				
57.a	TRUN CDU 16X ERROR gain at +2.5 v output	v/v				
57.b	TRUN CDU 16X ERROR gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
57.c	TRUN CDU 16X ERROR gain at +0.5 v output	v/v				
57.d	TRUN CDU 16X ERROR gain at -0.5 v output	v/v				
57.e	TRUN CDU 16X ERROR gain at -1.5 v output	v/v				
57.f	TRUN CDU 16X ERROR gain at -2.5 v output	v/v				
58	TRUN CDU 16X ERROR average gain	v/v				
59.a	Difference between gain at +2.5 v output and average gain	percent			5	
59.b	Difference between gain at +1.5 v output and average gain	percent			5	
59.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
59.d	Difference between gain at -0.5 v output and average gain	percent			5	
59.e	Difference between gain at -1.5 v output and average gain	percent			5	
59.f	Difference between gain at -2.5 v output and average gain	percent			5	
63	-28 VDC SUPPLY offset (CG1101)	mv	-40		+40	
66	-28 VDC SUPPLY Input	vdc	-30.8		-25.2	
69.a	-28 VDC SUPPLY Input at 5 v output	vdc				
69.b	-28 VDC SUPPLY Input at 4 v output	vdc				
69.c	-28 VDC SUPPLY Input at 3 v output	vdc				
69.d	-28 VDC SUPPLY Input at 2 v output	vdc				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
71.a	-28 VDC SUPPLY gain at 5 v output	v/v				
71.b	-28 VDC SUPPLY gain at 4 v output	v/v				
71.c	-28 VDC SUPPLY gain at 3 v output	v/v				
71.d	-28 VDC SUPPLY gain at 2 v output	v/v				
72	-28 VDC SUPPLY average gain	v/v				
73.a	Difference between gain at 5 v output and average gain	percent			10	
73.b	Difference between gain at 4 v output and average gain	percent			10	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
73.c	Difference be- tween gain at 3 v output and average gain	percent			10	
73.d	Difference be- tween gain at 2 v output and average gain	percent			10	
78	SXT TRN MDA offset (CG3104)	mv	-40		+40	
79	Algebraically add +2.5 to offset	vdc				
81	SXT TRN MDA Input	vrms	5.04		6.16	
83	SXT TRN MDA ripple	mv p-p			15	
86.a	SXT TRN MDA Input at +2.5 v output	vrms				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
57.c	TRUN CDU 16X ERROR gain at +0.5 v output	v/v				
57.d	TRUN CDU 16X ERROR gain at -0.5 v output	v/v				
57.e	TRUN CDU 16X ERROR gain at -1.5 v output	v/v				
57.f	TRUN CDU 16X ERROR gain at -2.5 v output	v/v				
58	TRUN CDU 16X ERROR average gain	v/v				
59.a	Difference between gain at +2.5 v output and average gain	percent			5	
59.b	Difference between gain at +1.5 v output and average gain	percent			5	
59.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
59.d	Difference between gain at -0.5 v output and average gain	percent			5	
59.e	Difference between gain at -1.5 v output and average gain	percent			5	
59.f	Difference between gain at -2.5 v output and average gain	percent			5	
63	-28 VDC SUPPLY offset (CG110 I)	mv	-40		+40	
66	-28 VDC SUPPLY Input	vdc	-30.8		-25.2	
69.a	-28 VDC SUPPLY Input at 5 v output	vdc				
69.b	-28 VDC SUPPLY Input at 4 v output	vdc				
69.c	-28 VDC SUPPLY Input at 3 v output	vdc				
69.d	-28 VDC SUPPLY Input at 2 v output	vdc				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
71.a	-28 VDC SUPPLY gain at 5 v output	v/v				
71.b	-28 VDC SUPPLY gain at 4 v output	v/v				
71.c	-28 VDC SUPPLY gain at 3 v output	v/v				
71.d	-28 VDC SUPPLY gain at 2 v output	v/v				
72	-28 VDC SUPPLY average gain	v/v				
73.a	Difference between gain at 5 v output and average gain	percent			10	
73.b	Difference between gain at 4 v output and average gain	percent			10	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
73.c	Difference be- tween gain at 3 v output and average gain	percent			10	
73.d	Difference be- tween gain at 2 v output and average gain	percent			10	
78	SXT TRN MDA offset (CG3104)	mv	-40		+40	
79	Algebraically add +2.5 to offset	vdc				
81	SXT TRN MDA Input	v rms	5.04		6.16	
83	SXT TRN MDA ripple	mv p-p			15	
85.a	SXT TRN MDA Input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
86.b	SXT TRN MDA input at +1.5 v output	v _{rms}				
86.c	SXT TRN MDA input at +0.5 v output	v _{rms}				
86.d	SXT TRN MDA input at -0.5 v output	v _{rms}				
86.e	SXT TRN MDA input at -1.5 v output	v _{rms}				
86.f	SXT TRN MDA input at -2.5 v output	v _{rms}				
88.a	SXT TRN MDA gain at +2.5 v output	v/v				
88.b	SXT TRN MDA gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
88.c	SXT TRN MDA gain at +0.5 v output	v/v				
88.d	SXT TRN MDA gain at -0.5 v output	v/v				
88.e	SXT TRN MDA gain at -1.5 v output	v/v				
88.f	SXT TRN MDA gain at -2.5 v output	v/v				
89	SXT TRN MDA average gain	v/v				
90.a	Difference between gain at +2.5 v output and average gain	percent			5	
90.b	Difference between gain at +1.5 v output and average gain	percent			5	
90.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
90.d	Difference between gain at -0.5 v output and average gain	percent			5	
90.e	Difference between gain at -1.5 v output and average gain	percent			5	
90.f	Difference between gain at -2.5 v output and average gain	percent			5	
91.a (78)	SXT SH MDA offset (CG3114)	mv	-40		+40	
91.a (79)	Algebraically add +2.5 to offset	vdc				
91.a (81)	SXT SH MDA input	v _{rms}	5.04		6.16	
91.a (83)	SXT SH MDA ripple	mv p-p			15	
91.a (86)	SXT SH MDA input at +2.5 v output	v _{rms}				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.a (86.b)	SXT SH MDA input at +1.5 v output	v _{rms}				
91.a (86.c)	SXT SH MDA input at +0.5 v output	v _{rms}				
91.a (86.d)	SXT SH MDA input at -0.5 v output	v _{rms}				
91.a (86.e)	SXT SH MDA input at -1.5 v output	v _{rms}				
91.a (86.f)	SXT SH MDA input at -2.5 v output	v _{rms}				
91.a (88.a)	SXT SH MDA gain at +2.5 v output	v/v				
91.a (88.b)	SXT SH MDA gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
86.b	SXT TRN MDA input at +1.5 v output	v rms				
86.c	SXT TRN MDA input at +0.5 v output	v rms				
86.d	SXT TRN MDA input at -0.5 v output	v rms				
86.e	SXT TRN MDA input at -1.5 v output	v rms				
86.f	SXT TRN MDA input at -2.5 v output	v rms				
88.a	SXT TRN MDA gain at +2.5 v output	v/v				
88.b	SXT TRN MDA gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
88.c	SXT TRN MDA gain at +0.5 v output	v/v				
88.d	SXT TRN MDA gain at -0.5 v output	v/v				
88.e	SXT TRN MDA gain at -1.5 v output	v/v				
88.f	SXT TRN MDA gain at -2.5 v output	v/v				
89	SXT TRN MDA average gain	v/v				
90.a	Difference between gain at +2.5 v output and average gain	percent			5	
90.b	Difference between gain at +1.5 v output and average gain	percent			5	
90.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
90.d	Difference between gain at -0.5 v output and average gain	percent			5	
90.e	Difference between gain at -1.5 v output and average gain	percent			5	
90.f	Difference between gain at -2.5 v output and average gain	percent			5	
91.a (78)	SXT SH MDA offset (CG3114)	mv	-40		+40	
91.a (79)	Algebraically add +2.5 to offset	vdv				
91.a (81)	SXT SH MDA input	v rms	5.04		6.16	
91.a (83)	SXT SH MDA ripple	mv p-p			15	
91.a (86)	SXT SH MDA input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.a (86.b)	SXT SH MDA input at +1.5 v output	v rms				
91.a (86.c)	SXT SH MDA input at +0.5 v output	v rms				
91.a (86.d)	SXT SH MDA input at -0.5 v output	v rms				
91.a (86.e)	SXT SH MDA input at -1.5 v output	v rms				
91.a (86.f)	SXT SH MDA input at -2.5 v output	v rms				
91.a (88.a)	SXT SH MDA gain at +2.5 v output	v/v				
91.a (88.b)	SXT SH MDA gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.a (88.e)	SXT SH MDA gain at +0.5 v output	v/v				
91.a (88.d)	SXT SH MDA gain at -0.5 v output	v/v				
91.a (88.e)	SXT SH MDA gain at -1.5 v output	v/v				
91.a (88.f)	SXT SH MDA gain at -2.5 v output	v/v				
91.a (89)	SXT SH MDA average gain	v/v				
91.a (90.a)	Difference between gain at +2.5 v output and average gain	percent			5	
91.a (90.b)	Difference between gain at +1.5 v output and average gain	percent			5	
91.a (90.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.a (90.d)	Difference between gain at -0.5 v output and average gain	percent			5	
91.a (90.e)	Difference between gain at -1.5 v output and average gain	percent			5	
91.a (90.f)	Difference between gain at -2.5 v output and average gain	percent			5	
91.b (78)	SXT TRN TACH offset (CG3105)	mv	-40		+40	
91.b (79)	Algebraically add +2.5 to offset	vdc				
91.b (81)	SXT TRN TACH input	vrms	5.04		6.16	
91.b (83)	SXT TRN TACH ripple	mv p-p			15	
91.b (86.a)	SXT TRN TACH input at +2.5 v output	vrms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.b (86.b)	SXT TRN TACH input at +1.5 v output	vrms				
91.b (86.c)	SXT TRN TACH input at +0.5 v output	vrms				
91.b (86.d)	SXT TRN TACH input at -0.5 v output	vrms				
91.b (86.e)	SXT TRN TACH input at -1.5 v output	vrms				
91.b (86.f)	SXT TRN TACH input at -2.5 v output	vrms				
91.b (88.a)	SXT TRN TACH gain at +2.5 v output	v/v				
91.b (88.b)	SXT TRN TACH gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.b (88.c)	SXT TRN TACH gain at +0.5 v output	v/v				
91.b (88.d)	SXT TRN TACH gain at -0.5 v output	v/v				
91.b (88.e)	SXT TRN TACH gain at -1.5 v output	v/v				
91.b (88.f)	SXT TRN TACH gain at -2.5 v output	v/v				
91.b (89)	SXT TRN TACH average gain	v/v				
91.b (90.a)	Difference between gain at +2.5 v output and average gain	percent			5	
91.b (90.b)	Difference between gain at +1.5 v output and average gain	percent			5	
91.b (90.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.a (88.o)	SXT SH MDA gain at +0.5 v output	v/v				
91.a (88.d)	SXT SH MDA gain at -0.5 v output	v/v				
91.a (88.e)	SXT SH MDA gain at -1.5 v output	v/v				
91.a (88.f)	SXT SH MDA gain at -2.5 v output	v/v				
91.a (89)	SXT SH MDA average gain	v/v				
91.a (90.a)	Difference between gain at +2.5 v output and average gain	percent			5	
91.a (90.b)	Difference between gain at +1.5 v output and average gain	percent			5	
91.a (90.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.a (90.d)	Difference between gain at -0.5 v output and average gain	percent			5	
91.a (90.e)	Difference between gain at -1.5 v output and average gain	percent			5	
91.a (90.f)	Difference between gain at -2.5 v output and average gain	percent			5	
91.b (78)	SXT TRN TACH offset (CG3105)	mv	-40		+40	
91.b (79)	Algebraically add +2.5 to offset	vdc				
91.b (81)	SXT TRN TACH input	vrms	5.04		6.16	
91.b (83)	SXT TRN TACH ripple	mv p-p			15	
91.b (86.a)	SXT TRN TACH input at +2.5 v output	vrms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.b (86.b)	SXT TRN TACH input at +1.5 v output	vrms				
91.b (86.c)	SXT TRN TACH input at +0.5 v output	vrms				
91.b (86.d)	SXT TRN TACH input at -0.5 v output	vrms				
91.b (86.e)	SXT TRN TACH input at -1.5 v output	vrms				
91.b (86.f)	SXT TRN TACH input at -2.5 v output	vrms				
91.b (86.a)	SXT TRN TACH gain at +2.5 v output	v/v				
91.b (86.b)	SXT TRN TACH gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.b (88.o)	SXT TRN TACH gain at +0.5 v output	v/v				
91.b (88.d)	SXT TRN TACH gain at -0.5 v output	v/v				
91.b (88.e)	SXT TRN TACH gain at -1.5 v output	v/v				
91.b (88.f)	SXT TRN TACH gain at -2.5 v output	v/v				
91.b (89)	SXT TRN TACH average gain	v/v				
91.b (90.a)	Difference between gain at +2.5 v output and average gain	percent			5	
91.b (90.b)	Difference between gain at +1.5 v output and average gain	percent			5	
91.b (90.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.b (90.d)	Difference between gain at -0.5 v output and average gain	percent			5	
91.b (90.e)	Difference between gain at -1.5 v output and average gain	percent			5	
91.b (90.f)	Difference between gain at -2.5 v output and average gain	percent			5	
91.c (78)	SXT SH TACH offset (CG3115)	mv	-40		+40	
91.c (79)	Algebraically add +2.5 to offset	vdc				
91.c (81)	SXT SH TACH input	v rms	5.04		6.16	
91.c (83)	SXT SH TACH ripple	mv p-p			15	
91.c (86.a)	SXT SH TACH input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.c (86.b)	SXT SH TACH input at +1.5 v output	v rms				
91.c (86.c)	SXT SH TACH input at +0.5 v output	v rms				
91.c (86.d)	SXT SH TACH input at -0.5 v output	v rms				
91.c (86.e)	SXT SH TACH input at -1.5 v output	v rms				
91.c (86.f)	SXT SH TACH input at -2.5 v output	v rms				
91.c (88.a)	SXT SH TACH gain at +2.5 v output	v/v				
91.c (88.b)	SXT SH TACH gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.c (88.c)	SXT SH TACH gain at +0.5 v output	v/v				
91.c (88.d)	SXT SH TACH gain at -0.5 v output	v/v				
91.c (88.e)	SXT SH TACH gain at -1.5 v output	v/v				
91.c (88.f)	SXT SH TACH gain at -2.5 v output	v/v				
91.c (89)	SXT SH TACH average gain	v/v				
91.c (90.a)	Difference between gain at +2.5 v output and average gain	percent			5	
91.c (90.b)	Difference between gain at +1.5 v output and average gain	percent			5	
91.c (90.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.c (90.d)	Difference between gain at -0.5 v output and average gain	percent			5	
91.c (90.e)	Difference between gain at -1.5 v output and average gain	percent			5	
91.c (90.f)	Difference between gain at -2.5 v output and average gain	percent			5	
96	SHAFT CDU 16X offset (CG3211)	mv	-40		+40	
97	Algebraically add +2.5 to offset	vdc				
99	SHAFT CDU 16X input	v rms	5.04		6.16	
101	SHAFT CDU 16X ripple	mv p-p			15	
104.a	SHAFT CDU 16X input at +2.5 v output	v rms				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.b (90.d)	Difference between gain at -0.5 v output and average gain	percent			5	
91.b (90.e)	Difference between gain at -1.5 v output and average gain	percent			5	
91.b (90.f)	Difference between gain at -2.5 v output and average gain	percent			5	
91.c (78)	SXT SH TACH offset (CG3115)	mv	-40		+40	
91.c (79)	Algebraically add +2.5 to offset	vdc				
91.c (81)	SXT SH TACH input	vrms	5.04		6.16	
91.c (83)	SXT SH TACH ripple	mv p-p			15	
91.c (86.a)	SXT SH TACH input at +2.5 v output	vrms				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.c (86.b)	SXT SH TACH input at +1.5 v output	vrms				
91.c (86.c)	SXT SH TACH input at +0.5 v output	vrms				
91.c (86.d)	SXT SH TACH input at -0.5 v output	vrms				
91.c (86.e)	SXT SH TACH input at -1.5 v output	vrms				
91.c (86.f)	SXT SH TACH input at -2.5 v output	vrms				
91.c (88.a)	SXT SH TACH gain at +2.5 v output	v/v				
91.c (88.b)	SXT SH TACH gain at +1.5 v output	v/v				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.c (88.c)	SXT SH TACH gain at +0.5 v output	v/v				
91.c (88.d)	SXT SH TACH gain at -0.5 v output	v/v				
91.c (88.e)	SXT SH TACH gain at -1.5 v output	v/v				
91.c (88.f)	SXT SH TACH gain at -2.5 v output	v/v				
91.c (88)	SXT SH TACH average gain	v/v				
91.c (90.a)	Difference between gain at +2.5 v output and average gain	percent			5	
91.c (90.b)	Difference between gain at +1.5 v output and average gain	percent			5	
91.c (90.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
91.c (90.d)	Difference between gain at -0.5 v output and average gain	percent			5	
91.c (90.e)	Difference between gain at -1.5 v output and average gain	percent			5	
91.c (90.f)	Difference between gain at -2.5 v output and average gain	percent			5	
96	SHAFT CDU 16X offset (CG3211)	mv	-40		+40	
97	Algebraically add +2.5 to offset	vdc				
99	SHAFT CDU 16X input	vrms	5.04		6.16	
101	SHAFT CDU 16X ripple	mv p-p			15	
104.a	SHAFT CDU 16X input at +2.5 v output	vrms				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
104.b	SHAFT CDU 16X input at +1.5 v output	vrms				
104.c	SHAFT CDU 16X input at +0.5 v output	vrms				
104.d	SHAFT CDU 16X input at -0.5 v output	vrms				
104.e	SHAFT CDU 16X input at -1.5 v output	vrms				
104.f	SHAFT CDU 16X input at -2.5 v output	vrms				
106.a	SHAFT CDU 16X gain at +2.5 v output	v/v				
106.b	SHAFT CDU 16X gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 800 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
106.c	SHAFT CDU 16X gain at +0.5 v output	v/v				
106.d	SHAFT CDU 16X gain at -0.5 v output	v/v				
106.e	SHAFT CDU 16X gain at -1.5 v output	v/v				
106.f	SHAFT CDU 16X gain at -2.5 v output	v/v				
107	SHAFT CDU 16X average gain	v/v				
108.a	Difference between gain at +2.5 v output and average gain	percent			5	
108.b	Difference between gain at +1.5 v output and average gain	percent			5	
108.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
108.d	Difference between gain at -0.5 v output and average gain	percent			5	
108.e	Difference between gain at -1.5 v output and average gain	percent			5	
108.f	Difference between gain at -2.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / ACC
104.b	SHAFT CDU 16X input at +1.5 v output	v rms				
104.c	SHAFT CDU 16X input at +0.5 v output	v rms				
104.d	SHAFT CDU 16X input at -0.5 v output	v rms				
104.e	SHAFT CDU 16X input at -1.5 v output	v rms				
104.f	SHAFT CDU 16X input at -2.5 v output	v rms				
106.a	SHAFT CDU 16X gain at +2.5 v output	v/v				
106.b	SHAFT CDU 16X gain at +1.5 v output	v/v				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / ACC
106.o	SHAFT CDU 16X gain at +0.5 v output	v/v				
106.d	SHAFT CDU 16X gain at -0.5 v output	v/v				
106.e	SHAFT CDU 16X gain at -1.5 v output	v/v				
106.f	SHAFT CDU 16X gain at -2.5 v output	v/v				
107	SHAFT CDU 16X average gain	v/v				
108.a	Difference between gain at +2.5 v output and average gain	percent			5	
108.b	Difference between gain at +1.5 v output and average gain	percent			5	
108.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / ACC
108.d	Difference between gain at -0.5 v output and average gain	percent			5	
108.e	Difference between gain at -1.5 v output and average gain	percent			5	
108.f	Difference between gain at -2.5 v output and average gain	percent			5	

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SUBSYSTEM

DESCRIPTION Pre-installation acceptance testing of scaler and dc channels in Blk I (100 series) signal conditioner.

Rev. Let.	Date	TDRR NO.	PAGES REVISED		APPROVAL	REFERENCES
			JDC	D.S.		
A	11-16-67	35045	All	1,4,7,10-12	MIT NASA	specs 1007666, 1007663, and 2016145
						IMPORTANT
						INTERVAL
						TOOLS AND MATERIAL

NOTE: Table I is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.

1. Press X BAR OUTPUT and VOLT-METER on.
2. Set crossbar to 60 (+20 VDC CONDITIONING).
3. Press PUSH TO ADVANCE.
4. Adjust DC ADJUST, if necessary, until DVM indicates 20 (± 0.2) vdc.

5. Set crossbar to 10 (800 CPS 28V from MC240 amplifier).

6. Press PUSH TO ADVANCE. If DVM does not indicate 28 (± 0.28) vrms, repeat steps B.1 through B.9 of JDC 18851 before proceeding.

7. Set crossbar to 46 (IG TORQUE MOTOR channel).

8. Press PUSH TO ADVANCE.

9. Set DC SCALER to 0.0000.

10. Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.

11. Press DC POS.

VERIFICATION WITH SIDL REQUIRED BEFORE USE

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Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins	Signal Conditioner Module
		High	Low	High	Low
60	+20 VDC CONDITIONING	J1-82	J1-83		(Operat- ing power and uncondi- tioned signal) Torque motor
46	IG TORQUE MOTOR	J1-92	J1-91	P1-87	P1-72
47	MG TORQUE MOTOR	J1-132	J1-110	P1-105	P1-72
48	OG TORQUE MOTOR	J1-131	J1-109	P1-127	P1-72
40	IMU STANDBY	J1-47	J1-48	P1-60	J1-48
41	IMU OPERATE	J1-49	J1-48	P1-59	J1-48
42	COMPUTER OPERATE	J1-64	J1-63	P1-62	J1-63
43	OPTICS OPERATE	J1-6	J1-5	P1-61	J1-5
44	GIMBAL LOCK	J1-85	J1-68	P1-45	J1-68
45	G & N ERROR DETECT	J1-84	J1-68	P1-44	J1-68
50	IMU TEMP FAIL	J1-86	J1-68	P1-79	J1-68
51	IMU DELAY	J1-89	J1-68	P1-63	J1-68
52	COMPUTER POWER FAIL	J1-67	J1-68	P1-46	J1-68
57	IMU PRESSURE	J1-79	J1-78	P1-55	J1-65
53	PIPA TEMP	J1-106	J1-128	P1-86	P1-71
54	IRIG TEMP	J1-127	J1-128	P1-69	P1-71
55	IMU HEATER CURRENT	J1-129	J1-128	P1-68	P1-71
56	IMU BLOWER CURRENT	J1-107	J1-128	P1-52	P1-71
58	+28 VDC IMU	J1-49	J1-48	P2-10	P2-11

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CAUTION: To prevent damage to signal conditioner do not allow dc voltages to exceed listed values.

12. Adjust T50-2 power supply until volt-meter on T50-2 indicates 35 (± 0.1) vdc.
13. Adjust DC SCALER until DVM indicates +2.5 (± 0.005) vdc output.
14. Press X BAR INPUT and record dc input voltage indicated on DVM.
15. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
16. Measure peak-to-peak ripple voltage on oscilloscope and record.
17. Press SCOPE off and VOLTMETER on.

18. Adjust DC SCALER until DVM indicates output voltage listed below. Perform steps 19 and 20 for each voltage. Press DC NEG for negative outputs.

Test	Adjust DC SCALER for output:
a.	+2.500 (± 0.005) vdc
b.	+1.500 (± 0.005) vdc
c.	+0.500 (± 0.005) vdc
d.	-0.500 (± 0.005) vdc
e.	-1.500 (± 0.005) vdc
f.	-2.500 (± 0.005) vdc

19. Press X BAR INPUT. Measure and record dc input voltage indicated on DVM for tests a through f.

20. Press X BAR OUTPUT and return to step 18 until all tests are completed.

21. Compute and record gains a through f using following equation for each gain:

$$\text{GAIN} = \frac{E_{\text{out}} (\text{step 18}) - E_{\text{offset}} (\text{step 10})}{E_{\text{in}} (\text{step 19})}$$

22. Add gains recorded in step 21, divide by 6 to find average gain, and record average.

23. Compute and record percentage of difference between each gain, a through f, and average gain.

24. Set crossbar to next position, listed below, and repeat steps 8 through 23 until all following tests are completed.

Test	XBAR	Crossbar position
a.	47	MG TORQUE MOTOR
b.	48	OG TORQUE MOTOR

25. Set crossbar to 40 (IMU STANDBY channel).

26. Press X BAR OUTPUT, PUSH TO ADVANCE, and PUSH TO INITIATE on.

27. Adjust DC SCALER until DVM indicates output voltage of 4.71 (± 0.01) vdc.

28. Press X BAR INPUT.

29. Measure and record dc input voltage indicated on DVM.

30. Set crossbar to next position, listed below, and repeat steps 26 through 29 until all following tests are completed.

Test	XBAR	Channel tested
a.	41	IMU OPERATE
b.	42	COMPUTER OPERATE

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31. Set crossbar to 89 (+28 VDC OPTICS channel).

32. Press PUSH TO ADVANCE and X BAR INPUT.

33. Measure and record dc input voltage indicated on DVM.

34. Set crossbar to 43 (OPTICS OPERATE channel).

35. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR OUTPUT.

36. Measure and record dc output voltage indicated on DVM.

37. Determine and record minimum and maximum value of dc output voltage recorded in step 36 as follows:

- a. MIN VALUE = dc input voltage (step 33) $\times 0.155$
- b. MAX VALUE = dc input voltage (step 33) $\times 0.181$

38. Set crossbar to 44 (GIMBAL LOCK channel).

39. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR OUTPUT.

40. Adjust DC SCALER until DVM indicates output voltage of 4.07 (± 0.01) vdc.

41. Press X BAR INPUT.

42. Measure and record dc input voltage indicated on DVM.

43. Set crossbar to next position, listed below, and repeat steps 39 through 43 until all following tests are completed.

Test	X BAR	Channel Tested
a.	45	G&N ERROR DETECT
b.	50	IMU TEMP FAIL
c.	51	IMU DELAY
d.	52	COMPUTER POWER FAIL

44. Set crossbar to 57 (IMU PRESSURE channel).

45. Set DC SCALER to 0.0000.

46. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR INPUT.

47. Adjust DC SCALER until DVM indicates input voltage to 20.0 (± 0.2) vdc.

48. Press X BAR OUTPUT. Measure and record dc output voltage indicated on DVM.

49. Set crossbar to 53 (PIPA TEMP channel).

50. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR INPUT.

51. Adjust DC SCALER until DVM indicates 5 (± 0.006) vdc.

52. Press X BAR OUTPUT and record dc output voltage indicated on DVM.

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SIGNAL CONDITIONER SCALER AND DC
JOB CHANNEL TESTS - BLK I (100 Series)

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53. Set crossbar to next position, listed below, and repeat steps 50 through 52 until all following tests are completed.

Test X BAR Channel Tested

a. 54 IRIG TEMP

b. 55 IMU HEATER CURRENT

c. 56 IMU BLOWER CURRENT

54. Set crossbar to 58 (-28 VDC IMU channel).

55. Press PUSH TO ADVANCE and X BAR INPUT.

56. Adjust DC SCALER until DVM indicates 28 (+0.2) vdc.

57. Press PUSH TO INITIATE on.

58. Measure dc input indicated on DVM.

If necessary, adjust DC SCALER until DVM indicates 28 (+0.2) vdc.

59. Press X BAR OUTPUT. Measure and record dc output voltage indicated on DVM.

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EQUIPMENT TEST

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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	REV.	SITE / LOCATION
MAJOR GROUND SUPPORT EQUIPMENT		TIME	TOTAL ELAPSED
NAME	SER. NO.	SER. NO.	CAL DATE
NAME	SER. NO.	SER. NO.	CAL DATE
CONDUCTED BY		APPROVED BY	
NAME/AFFILIATION		NAME/AFFILIATION	

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
10	IG TORQUE MTR offset (CG2110)	mv	-40*		40*	
14	IG TORQUE MTR input	vdc	7.70		8.30	
16	IG TORQUE MTR ripple	mv p-p			10	
19.a	IG TORQUE MTR input at +2.5 v output	vdc				

NOTE
Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.

*Most output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage is listed as 0 (+40) mv, add +2.5 to each output for that channel to determine output voltages in actual system operation.

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CIR. 7-3-65

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EQUIPMENT TEST

DATA SHEET 2 OF 12

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
19.b	IG TORQUE MTR input at +1.5 v output	vdc				
19.c	IG TORQUE MTR input at +0.5 v output	vdc				
19.d	IG TORQUE MTR input at -0.5 v output	vdc				
19.e	IG TORQUE MTR input at -1.5 v output	vdc				
19.f	IG TORQUE MTR input at -2.5 v output	vdc				
21.a	IG TORQUE MTR gain at +2.5 v output	v/v				
21.b	IG TORQUE MTR gain at +1.5 v output	v/v				

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APOLLO GAN

EQUIPMENT TEST

DATA SHEET 3 OF 12

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
21.c	IG TORQUE MTR gain at +0.5 v output	v/v				
21.d	IG TORQUE MTR gain at -0.5 v output	v/v				
21.e	IG TORQUE MTR gain at -1.5 v output	v/v				
21.f	IG TORQUE MTR gain at -2.5 v output	v/v				
22	IG TORQUE MTR average gain	v/v				
23.a	Difference between gain at +2.5 v output and average gain	percent			5	
23.b	Difference between gain at +1.5 v output and average gain	percent			5	
23.c	Difference between gain at -0.5 v output and average gain	percent			5	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 4 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.d	Difference between gain at -0.5 v output and average gain	percent			5	
23.e	Difference between gain at -1.5 v output and average gain	percent			5	
23.f	Difference between gain at -2.5 v output and average gain	percent			5	
24.a (10)	MG TORQUE MTR offset (CG2140)	mv	-40		+40	
24.a (14)	MG TORQUE MTR input	vdc	7.70		8.30	
24.a (16)	MG TORQUE MTR ripple	mv p-p			10	
24.a (19.a)	MG TORQUE MTR input at +2.5 v output	vdc				

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EQUIPMENT TEST
DATA SHEET 5 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.a (19.b)	MG TORQUE MTR input at +1.5 v output	vdc				
24.a (19.c)	MG TORQUE MTR input at -0.5 v output	vdc				
24.a (19.d)	MG TORQUE MTR input at -0.5 v output	vdc				
24.a (19.e)	MG TORQUE MTR input at -1.5 v output	vdc				
24.a (19.f)	MG TORQUE MTR input at -2.5 v output	vdc				
24.a (21.a)	MG TORQUE MTR gain at +2.5 v output	v/v				
24.a (21.b)	MG TORQUE MTR gain at +1.5 v output	v/v				

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EQUIPMENT TEST
DATA SHEET 6 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.a (21.e)	MG TORQUE MTR gain at +0.5 v output	v/v				
24.a (21.d)	MG TORQUE MTR gain at -0.5 v output	v/v				
24.a (21.e)	MG TORQUE MTR gain at -1.5 v output	v/v				
24.a (21.f)	MG TORQUE MTR gain at -2.5 v output	v/v				
24.a (22)	MG TORQUE MTR average gain	v/v				
24.a (23.a)	Difference between gain at +2.5 v output and average gain	percent			5	
24.a (23.b)	Difference between gain at +1.5 v output and average gain	percent			5	
24.a (23.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 7 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.a (23.d)	Difference between gain at -0.5 v output and average gain	percent			5	
24.a (23.e)	Difference between gain at -1.5 v output and average gain	percent			5	
24.a (23.f)	Difference between gain at -2.5 v output and average gain	percent			5	
24.b (10)	OG TORQUE MTR offset (CG2170)	mv	-40		+40	
24.b (14)	OG TORQUE MTR input	vdc	7.70		8.30	
24.b (16)	OG TORQUE MTR ripple	mv p-p			10	
24.b (19.a)	OG TORQUE MTR input at +2.5 v output	vdc				

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EQUIPMENT TEST
DATA SHEET 8 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (19.b)	OG TORQUE MTR input at +1.5 v output	vdc				
24.b (19.c)	OG TORQUE MTR input at +0.5 v output	vdc				
24.b (19.d)	OG TORQUE MTR input at -0.5 v output	vdc				
24.b (19.e)	OG TORQUE MTR input at -1.5 v output	vdc				
24.b (19.f)	OG TORQUE MTR input at -2.5 v output	vdc				
24.b (21.a)	OG TORQUE MTR gain at +2.5 v output	v/v				
24.b (21.b)	OG TORQUE MTR gain at +1.5 v output	v/v				

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EQUIPMENT TEST
DATA SHEET 9 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (21.c)	OG TORQUE MTR gain at +0.5 v output	v/v				
24.b (21.d)	OG TORQUE MTR gain at -0.5 v output	v/v				
24.b (21.e)	OG TORQUE MTR gain at -1.5 v output	v/v				
24.b (21.f)	OG TORQUE MTR gain at -2.5 v output	v/v				
24.b (22)	OG TORQUE MTR average gain	v/v				
24.b (23.a)	Difference between gain at +2.5 v output and average gain	percent			5	
24.b (23.b)	Difference between gain at +1.5 v output and average gain	percent			5	
24.b (23.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 10 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 Series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (23.d)	Difference between gain at -0.5 v out- put and average gain	percent			5	
24.b (23.e)	Difference between gain at -1.5 v output and average gain	percent			5	
24.b (23.f)	Difference between gain at -2.5 v output and average gain	percent			5	
29	IMU STANDBY input (CG1513)	vdc	26		30	
30.a (29)	IMU OPERATE input (CG1503)	vdc	26		30	
30.b (29)	COMPUTER OPERATE input (CG1523)	vdc	26		30	
33	OPTICS OPERATE input (CG1533)	vdc				
36	OPTICS OPERATE output	vdc	Step 37.a		Step 37.b	
37.a	MIN VALUE	vdc				
37.b	MAX VALUE	vdc				
42	GIMBAL LOCK input (CG5003)	vdc	26		30	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 11 OF 12

JDC
NO. 18853
REV. A

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 Series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
43.a (42)	C&N ERROR DETECT input (CG5006)	vdc	26		30	
43.b (42)	IMU TEMP FAIL input (CG5006)	vdc	26		30	
43.c (42)	IMU DELAY input (CG5008)	vdc	26		30	
43.d (42)	COMPUTER POWER FAIL input (CG5030)	vdc	26		30	
47	IMU PRESSURE 20v input (CG6000)	vdc	19.8		20.2	
48	IMU PRESSURE output at 20v input	vdc	11.35		12.65	
52	PIPA TEMP output (CG2300)	vdc	4.800		5.200	
53.a (52)	IRIG TEMP output (CG2301)	vdc	4.800		5.200	
53.b (52)	IMU HEATER CURRENT output (CG2302)	vdc	4.800		5.200	

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EQUIPMENT TEST
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 Series)

JDC
NO. 18653
REV. A

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
53.0 (52)	IMU BLOWER CURRENT output (CG2303)	vdc	4.800		5.200	
59	+28 VDC IMU output (CG1503)	vdc	27.6		28.4	

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SUBSYSTEM

DESCRIPTION Pre-installation acceptance testing of scaler and dc channels in Blk I (100 series) signal conditioner.

ASSY

Rev. Let.	Date	TDOR NO.	PAGES REVISED	APPROVAL	REFERENCE'S	Procurement
			JDC	MITT	NASA	specs 100-1166, 1007663
						IMPORTANT
						INTERVAL
						TOOLS AND MATERIAL

NOTE: Table I is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.

5. Set crossbar to 10 (800 CPS 28V from MC240 amplifier).

6. Press PUSH TO ADVANCE. If DVM does not indicate 28 (±0.28) vrms, repeat steps B.1 through B.9 of JDC 18851 before proceeding.

7. Set crossbar to 46 (IG TORQUE MOTOR channel).

8. Press PUSH TO ADVANCE.

9. Set DC SCALER to 0.00000.

10. Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.

11. Press DC POS.

1. Press X BAR OUTPUT and VOLT-METER on.

2. Set crossbar to 60 (+20 VDC CONDITIONING).

3. Press PUSH TO ADVANCE.

4. Adjust DC ADJUST, if necessary, until DVM indicates 20 (±0.2) vdc.

VERIFICATION WITH SIDL REQUIRED BEFORE USE

DATE

SUBSYSTEM

ASSY

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel		Signal Conditioner Input Pins		Signal Conditioner Output Pins		Signal Conditioner Module
	High	Low	High	Low	High	Low	
60	+20 VDC CONDITIONING		J1-82	J1-83			(Operating power and unconditioned signal) Torque motor
46	IG TORQUE MOTOR		J1-92	J1-91	P1-87	P1-71	Scaler
47	MG TORQUE MOTOR		J1-132	J1-110	P1-105	P1-71	
48	OG TORQUE MOTOR		J1-131	J1-109	P1-127	P1-71	
40	IMU STANDBY		J1-47	J1-48	P1-80	P1-71	
41	IMU OPERATE		J1-49	J1-48	P1-59	P1-71	
42	COMPUTER OPERATE		J1-64	J1-63	P1-62	P1-71	
43	OPTICS OPERATE		J1-6	J1-5	P1-61	P1-71	
44	GIMBAL LOCK		J1-85	J1-68	P1-45	P1-71	
45	G & N ERROR DETECT		J1-84	J1-68	P1-44	P1-71	
50	IMU TEMP FAIL		J1-86	J1-68	P1-79	P1-71	
51	IMU DELAY		J1-69	J1-68	P1-63	P1-71	
52	COMPUTER POWER FAIL		J1-67	J1-68	P1-46	P1-71	
57	IMU PRESSURE		J1-79	J1-78	P1-55	P1-71	
53	PIPA TEMP		J1-106	J1-128	P1-86	P1-71	
54	IRIG TEMP		J1-127	J1-128	P1-69	P1-71	
55	IMU HEATER CURRENT		J1-129	J1-128	P1-68	P1-71	
56	IMU BLOWER CURRENT		J1-107	J1-128	P1-62	P1-71	
59	+2.5 V CONDITIONING		J1-81	J1-65	P1-72	P1-71	
58	+28 VDC IMU		J1-49	J1-48	P2-10	P2-11	(Operating power and unconditioned signals)

DATE

SUBSYSTEM

ASSY

CAUTION: To prevent damage to signal conditioner do not allow dc voltages to exceed listed values.

12. Adjust T50-2 power supply until voltmeter on T50-2 indicates 35 (±0.1) vdc.

13. Adjust DC SCALER until DVM indicates +2.5 (±0.005) vdc output.

14. Press X BAR INPUT and record dc input voltage indicated on DVM.

15. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.

16. Measure peak-to-peak ripple voltage on oscilloscope and record.

17. Press SCOPE off and VOLTMETER on.

18. Adjust DC SCALER until DVM indicates output voltage listed below. Perform steps 19 and 20 for each voltage. Press DC NEG for negative outputs.

Test	Adjust DC SCALER for output
a.	+2.500 (±0.005) vdc
b.	+1.500 (±0.005) vdc
c.	+0.500 (±0.005) vdc
d.	-0.500 (±0.005) vdc
e.	-1.500 (±0.005) vdc
f.	-2.500 (±0.005) vdc

19. Press X BAR INPUT. Measure and record dc input voltage indicated on DVM for tests a through f.

20. Press X BAR OUTPUT and return to step 18 until all tests are completed.

21. Compute and record gains a through f using following equation for each gain:

$$\text{GAIN} = \frac{E_{\text{out}} (\text{step 18}) - E_{\text{offset}} (\text{step 10})}{E_{\text{in}} (\text{step 19})}$$

22. Add gains recorded in step 21, divide by 6 to find average gain, and record average.

23. Compute and record percentage of difference between each gain, a through f, and average gain.

24. Set crossbar to next position, listed below, and repeat steps 8 through 23 until all following tests are completed.

Test	XBAR	Crossbar position
a.	47	MG TORQUE MOTOR
b.	48	OG TORQUE MOTOR
c.	40	IMU STANDBY

25. Set crossbar to 40 (IMU STANDBY channel).

26. Press X BAR INPUT and PUSH TO ADVANCE.

27. Adjust DC SCALER until DVM indicates input voltage of 28 (±0.1) vdc.

28. Press PUSH TO INITIATE on and X BAR OUTPUT.

29. Measure and record dc output voltage indicated on DVM.

30. Set crossbar to next position, listed below, and repeat steps 26 through 29 until all following tests are completed.

Test	XBAR	Channel tested
a.	41	IMU OPERATE
b.	42	COMPUTER OPERATE

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Test XBAR Channel tested

c. 43 OPTICS OPERATE

d. 44 GIMBAL LOCK

e. 45 G & N ERROR DETECT

f. 50 IMU TEMP FAIL

g. 51 IMU DELAY

h. 52 COMPUTER POWER FAIL

31. Set crossbar to 57 (IMU PRESSURE channel).

32. Set DC SCALER to 0.00000.

33. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR INPUT.

34. Adjust DC SCALER until DVM indicates input voltage listed below. Record each input voltage. Perform steps 35 and 36 for each voltage.

Test	Adjust DC SCALER for input
a.	5.000 (±0.005) vdc
b.	10.200 (±0.100) vdc
c.	20.0 (±0.7) vdc

35. Press X BAR OUTPUT. Measure and record following values:

Test	Measure and record:
a, b.	Difference between output voltage indicated on DVM and value recorded in step 34.
c.	DC voltage indicated on DVM.

36. Press X BAR INPUT and return to step 34 until all tests are completed.

37. Set crossbar to 53 (PIPA TEMP channel).

38. Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR INPUT.

SUBSYSTEM

ASSY

DESCRIPTION Pre-Installation acceptance testing of scaler and dc channels in Blk I (100 series) signal conditioner.

Rev. Let.	Date	TORR NO.	PAGES REVISED	APPROVAL	REFERENCE'S	Procurement
			JDC	MIT	NASA	specs 1007466, 1007663
						IMPORTANT
						INTERVAL
						TOOLS AND MATERIAL

NOTE: Table I is provided

as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.

1. Press X BAR OUTPUT and VOLT-METER on.
2. Set crossbar to 60 (+20 VDC CONDITIONING).
3. Press PUSH TO ADVANCE.
4. Adjust DC ADJUST, if necessary, until DVM indicates 20 (±0.2) vdc.

5. Set crossbar to 10 (800 CPS 28V from MC240 amplifier).
6. Press PUSH TO ADVANCE. If DVM does not indicate 28 (±0.28) vrms, repeat steps B. 1 through B. 9 of JDC 18851 before proceeding.
7. Set crossbar to 46 (IG TORQUE MOTOR channel).
8. Press PUSH TO ADVANCE.
9. Set DC SCALER to 0.00000.
10. Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.
11. Press DC POS.

VERIFICATION WITH SID REQUIRED BEFORE USE

DATE

SUBSYSTEM

ASSY

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		Signal Conditioner Module
		High	Low	High	Low	
60	+20 VDC CONDITIONING	J1-82	J1-83			(Operating power and unconditioned signal) Torque motor
46	IG TORQUE MOTOR	J1-92	J1-91	P1-87	P1-71	Scaler
47	MG TORQUE MOTOR	J1-132	J1-110	P1-101	P1-71	
48	OG TORQUE MOTOR	J1-131	J1-109	P1-127	P1-71	
40	IMU STANDBY	J1-47	J1-48	P1-60	P1-71	
41	IMU OPERATE	J1-49	J1-48	P1-59	P1-71	
42	COMPUTER OPERATE	J1-64	J1-63	P1-62	P1-71	
43	OPTICS OPERATE	J1-6	J1-5	P1-61	P1-71	
44	GIMBAL LOCK	J1-85	J1-68	P1-45	P1-71	
45	G & N ERROR DETECT	J1-84	J1-68	P1-44	P1-71	
50	IMU TEMP FAIL	J1-86	J1-68	P1-79	P1-71	
51	IMU DELAY	J1-89	J1-68	P1-63	P1-71	
52	COMPUTER POWER FAIL	J1-67	J1-68	P1-46	P1-71	
57	IMU PRESSURE	J1-79	J1-78	P1-55	P1-71	
53	PIPA TEMP	J1-106	J1-128	P1-86	P1-71	
54	IRIG TEMP	J1-127	J1-128	P1-69	P1-71	
55	IMU HEATER CURRENT	J1-129	J1-128	P1-68	P1-71	
56	IMU BLOWER CURRENT	J1-107	J1-128	P1-52	P1-71	
59	+2.5 V CONDITIONING	J1-81	J1-65	P1-72	P1-71	
58	+28 VDC IMU	J1-49	J1-48	P2-10	P2-11	

DATE

SUBSYSTEM

ASSY

- CAUTION: To prevent damage to signal conditioner do not allow dc voltages to exceed listed values.
12. Adjust T50-2 power supply until voltmeter on T50-2 indicates 35 (±0.1) vdc.
 13. Adjust DC SCALER until DVM indicates +2.5 (±0.005) vdc output.
 14. Press X BAR INPUT and record dc input voltage indicated on DVM.
 15. Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
 16. Measure peak-to-peak ripple voltage on oscilloscope and record.
 17. Press SCOPE off and VOLTMETER on.

18. Adjust DC SCALER until DVM indicates output voltage listed below. Perform steps 19 and 20 for each voltage. Press DC NEG for negative outputs.

Test	Adjust DC SCALER for output
a.	+2.500 (±0.005) vdc
b.	+1.500 (±0.005) vdc
c.	+0.500 (±0.005) vdc
d.	-0.500 (±0.005) vdc
e.	-1.500 (±0.005) vdc
f.	-2.500 (±0.005) vdc

19. Press X BAR INPUT. Measure and record dc input voltage indicated on DVM for tests a through f.

20. Press X BAR OUTPUT and return to step 18 until all tests are completed.
21. Compute and record gains a through f using following equation for each gain:
$$GAIN = \frac{E_{out} (step 18) - E_{offset} (step 10)}{E_{in} (step 19)}$$
22. Add gains recorded in step 21, divide by 6 to find average gain, and record average.
23. Compute and record percentage of difference between each gain, a through f, and average gain.
24. Set crossbar to next position, listed below, and repeat steps 8 through 23 until all following tests are completed.

Test	XBAR	Crossbar position
a.	47	MG TORQUE MOTOR
b.	48	OG TORQUE MOTOR
25.		Set crossbar to 40 (IMU STANDBY channel).
26.		Press X BAR INPUT and PUSH TO ADVANCE.

27. Adjust DC SCALER until DVM indicates input voltage of 28 (±0.1) vdc.
28. Press PUSH TO INITIATE on and X BAR OUTPUT.
29. Measure and record dc output voltage indicated on DVM.
30. Set crossbar to next position, listed below, and repeat steps 26 through 29 until all following tests are completed.

Test	XBAR	Channel tested
a.	41	IMU OPERATE
b.	42	COMPUTER OPERATE

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39. Adjust DC SCALER until DVM indicates 5 (±0.005) vdc.
40. Press X BAR OUTPUT and record dc output voltage indicated on DVM.
41. Set crossbar to next position, listed below, and repeat steps 38 through 40 until all following tests are completed.

Test	XBAR	Channel tested
a.	54	IRIG TEMP
b.	55	IMU HEATER CURRENT
c.	56	IMU BLOWER CURRENT
42.		Set crossbar to 59 (+2.5 V CONDITIONING).

43. Press PUSH TO ADVANCE and X BAR INPUT.

44. Adjust DC SCALER until DVM indicates 2.500 (±0.001) vdc.
45. Press PUSH TO INITIATE on.
46. Measure dc input indicated on DVM. If necessary, adjust DC SCALER until DVM indicates 2.500 (±0.001) vdc.

47. Press X BAR OUTPUT. Measure and record dc output voltage indicated on DVM.
48. Set crossbar to 58 (+28 VDC IMU).
49. Press PUSH TO ADVANCE and X BAR INPUT.
50. Adjust DC SCALER until DVM indicates 28 (±0.2) vdc.
51. Press PUSH TO INITIATE on.
52. Measure dc input indicated on DVM. If necessary, adjust DC SCALER until DVM indicates 28 (±0.2) vdc.
53. Press X BAR OUTPUT. Measure and record dc output voltage indicated on DVM.

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 1 OF 12

JDC
NO. 18853
REV. 32926

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	REV.	SITE / LOCATION
TIME START END TOTAL ELAPSED			
MAJOR GROUND SUPPORT EQUIPMENT			
NAME	SER. NO.	CAL DATE	
NAME	SER. NO.	CAL DATE	
CONDUCTED BY		NAME/AFFILIATION	APPROVED BY

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
NOTE Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.						
10	IG TORQUE MTR offset (CG2110)	mv	-40*		40*	
14	IG TORQUE MTR input	vdc	7.80		8.20	
16	IG TORQUE MTR ripple	mv p-p			10	
19.a	IG TORQUE MTR input at +2.5 v output	vdc				

*Most output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage is listed as 0 (+40) mv, add +2.5 to each output for that channel to determine output voltages in actual system operation.

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 2 OF 12

JDC
NO. 18853
REV. -

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
19.b	IG TORQUE MTR input at +1.5 v output	vdc				
19.c	IG TORQUE MTR input at +0.5 v output	vdc				
19.d	IG TORQUE MTR input at -0.5 v output	vdc				
19.e	IG TORQUE MTR input at -1.5 v output	vdc				
19.f	IG TORQUE MTR input at -2.5 v output	vdc				
21.a	IG TORQUE MTR gain at +2.5 v output	v/v				
21.b	IG TORQUE MTR gain at +1.5 v output	v/v				

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JDC
NO. 18853
REV. -

JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
21.c	IG TORQUE MTR gain at +0.5 v output	v/v				
21.d	IG TORQUE MTR gain at -0.5 v output	v/v				
21.e	IG TORQUE MTR gain at -1.5 v output	v/v				
21.f	IG TORQUE MTR gain at -2.5 v output	v/v				
22	IG TORQUE MTR average gain	v/v				
23.a	Difference between gain at +2.5 v output and average gain	percent			5	
23.b	Difference between gain at +1.5 v output and average gain	percent			5	
23.c	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.d	Difference between gain at -0.5 v output and average gain	percent			5	
23.e	Difference between gain at -1.5 v output and average gain	percent			5	
23.f	Difference between gain at -2.5 v output and average gain	percent			5	
24.a (10)	MG TORQUE MTR offset (CG2140)	mv	-40		+40	
24.a (14)	MG TORQUE MTR input	vdc	7.80		8.20	
24.a (16)	MG TORQUE MTR ripple	mv p-p			10	
24.a (19.a)	MG TORQUE MTR input at +2.5 v output	vdc				

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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC NO. 18853
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INITIAL TORR

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	TIME	SITE / LOCATION
MAJOR GROUND SUPPORT EQUIPMENT		START	TOTAL ELAPSED
NAME	SER. NO.	END	
NAME	SER. NO.	CAL DATE	CAL INT
CONDUCTED BY		APPROVED BY	
NAME/AFFILIATION		NAME/AFFILIATION	

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
NOTE Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.						
10	IG TORQUE MTR offset (CG2110)	mv	-40*		40*	
14	IG TORQUE MTR Input	vdc	7.80		8.20	
16	IG TORQUE MTR ripple	mv p-p			10	
19.a	IG TORQUE MTR input at +2.5 v output	vdc				

*Most output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage is listed as 0 (+40) mv, add +2.5 to each output for that channel to determine output voltages in actual system operation.

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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC NO. 18853
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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
19.b	IG TORQUE MTR input at +1.5 v output	vdc				
19.c	IG TORQUE MTR input at +0.5 v output	vdc				
19.d	IG TORQUE MTR input at -0.5 v output	vdc				
19.e	IG TORQUE MTR input at -1.5 v output	vdc				
19.f	IG TORQUE MTR input at -2.5 v output	vdc				
21.a	IG TORQUE MTR gain at +2.5 v output	v/v				
21.b	IG TORQUE MTR gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC NO. 18853
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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
21.c	IG TORQUE MTR gain at +0.5 v output	v/v				
21.d	IG TORQUE MTR gain at -0.5 v output	v/v				
21.e	IG TORQUE MTR gain at -1.5 v output	v/v				
21.f	IG TORQUE MTR gain at -2.5 v output	v/v				
22	IG TORQUE MTR average gain	v/v				
23.a	Difference between gain at +2.5 v output and average gain	percent			5	
23.b	Difference between gain at +1.5 v output and average gain	percent			5	
23.c	Difference between gain at -0.5 v output and average gain	percent			5	

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EQUIPMENT TEST
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC NO. 18853
REV. -

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
23.d	Difference between gain at -0.5 v output and average gain	percent			5	
23.e	Difference between gain at -1.5 v output and average gain	percent			5	
23.f	Difference between gain at -2.5 v output and average gain	percent			5	
24.a (10)	MG TORQUE MTR offset (CG2140)	mv	-40		+40	
24.a (14)	MG TORQUE MTR input	vdc	7.80		8.20	
24.a (16)	MG TORQUE MTR ripple	mv p-p			10	
24.a (19.a)	MG TORQUE MTR input at +2.5 v output	vdc				

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EQUIPMENT TEST
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JDC
NO. 18853
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
24.a (19.b)	MG TORQUE MTR Input at +1.5 v output	vdc					
24.a (19.c)	MG TORQUE MTR Input at +0.5 v output	vdc					
24.a (19.d)	MG TORQUE MTR Input at -0.5 v output	vdc					
24.a (19.e)	MG TORQUE MTR Input at -1.5 v output	vdc					
24.a (19.f)	MG TORQUE MTR Input at -2.5 v output	vdc					
24.a (21.a)	MG TORQUE MTR gain at +2.5 v output	v/v					
24.a (21.b)	MG TORQUE MTR gain at +1.5 v output	v/v					

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
24.a (21.c)	MG TORQUE MTR gain at +0.5 v output	v/v					
24.a (21.d)	MG TORQUE MTR gain at -0.5 v output	v/v					
24.a (21.e)	MG TORQUE MTR gain at -1.5 v output	v/v					
24.a (21.f)	MG TORQUE MTR gain at -2.5 v output	v/v					
24.a (22)	MG TORQUE MTR average gain	v/v					
24.a (23.a)	Difference between gain at +2.5 v output and average gain	percent			5		
24.a (23.b)	Difference between gain at +1.5 v output and average gain	percent			5		
24.a (23.c)	Difference between gain at +0.5 v output and average gain	percent			5		

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
24.a (23.d)	Difference between gain at -0.5 v output and average gain	percent			5		
24.a (23.e)	Difference between gain at -1.5 v output and average gain	percent			5		
24.a (23.f)	Difference between gain at -2.5 v output and average gain	percent			5		
24.b (10)	OG TORQUE MTR offset (CG2170)	mv	-40		+40		
24.b (14)	OG TORQUE MTR input	vdc	7.80		8.20		
24.b (16)	OG TORQUE MTR ripple	mv p-p			10		
24.b (19.a)	OG TORQUE MTR input at +2.5 v output	vdc					

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
24.b (19.b)	OG TORQUE MTR Input at +1.5 v output	vdc					
24.b (19.c)	OG TORQUE MTR Input at +0.5 v output	vdc					
24.b (19.d)	OG TORQUE MTR Input at -0.5 v output	vdc					
24.b (19.e)	OG TORQUE MTR Input at -1.5 v output	vdc					
24.b (19.f)	OG TORQUE MTR Input at -2.5 v output	vdc					
24.b (21.a)	OG TORQUE MTR gain at +2.5 v output	v/v					
24.b (21.b)	OG TORQUE MTR gain at +1.5 v output	v/v					

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.a (19.b)	MG TORQUE MTR Input at +1.5 v output	vdc				
24.a (19.c)	MG TORQUE MTR Input at +0.5 v output	vdc				
24.a (19.d)	MG TORQUE MTR Input at -0.5 v output	vdc				
24.a (19.e)	MG TORQUE MTR Input at -1.5 v output	vdc				
24.a (19.f)	MG TORQUE MTR Input at -2.5 v output	vdc				
24.a (21.a)	MG TORQUE MTR gain at +2.5 v output	v/v				
24.a (21.b)	MG TORQUE MTR gain at +1.5 v output	v/v				

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JDC
NO. 18853
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.a (21.c)	MG TORQUE MTR gain at +0.5 v output	v/v				
24.a (21.d)	MG TORQUE MTR gain at -0.5 v output	v/v				
24.a (21.e)	MG TORQUE MTR gain at -1.5 v output	v/v				
24.a (21.f)	MG TORQUE MTR gain at -2.5 v output	v/v				
24.a (22)	MG TORQUE MTR average gain	v/v				
24.a (23.a)	Difference between gain at +2.5 v output and average gain	percent			5	
24.a (23.b)	Difference between gain at +1.5 v output and average gain	percent			5	
24.a (23.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.a (23.d)	Difference between gain at -0.5 v output and average gain	percent			5	
24.a (23.e)	Difference between gain at -1.5 v output and average gain	percent			5	
24.a (23.f)	Difference between gain at -2.5 v output and average gain	percent			5	
24.b (10)	OG TORQUE MTR offset (CG2170)	mv	-40		+40	
24.b (14)	OG TORQUE MTR Input	vdc	7.80		8.20	
24.b (16)	OG TORQUE MTR ripple	mv p-p			10	
24.b (19.a)	OG TORQUE MTR Input at +2.5 v output	vdc				

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (19.b)	OG TORQUE MTR Input at +1.5 v output	vdc				
24.b (19.c)	OG TORQUE MTR Input at +0.5 v output	vdc				
24.b (19.d)	OG TORQUE MTR Input at -0.5 v output	vdc				
24.b (19.e)	OG TORQUE MTR Input at -1.5 v output	vdc				
24.b (19.f)	OG TORQUE MTR Input at -2.5 v output	vdc				
24.b (21.a)	OG TORQUE MTR gain at +2.5 v output	v/v				
24.b (21.b)	OG TORQUE MTR gain at +1.5 v output	v/v				

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JDC
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JOB. SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (21.c)	OG TORQUE MTR gain at +0.5 v output	v/v				
24.b (21.d)	OG TORQUE MTR gain at -0.5 v output	v/v				
24.b (21.e)	OG TORQUE MTR gain at -1.5 v output	v/v				
24.b (21.f)	OG TORQUE MTR gain at -2.5 v output	v/v				
24.b (22)	OG TORQUE MTR average gain	v/v				
24.b (23.a)	Difference between gain at +2.5 v output and average gain	percent			5	
24.b (23.b)	Difference between gain at +1.5 v output and average gain	percent			5	
24.b (23.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB. SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (23.d)	Difference between gain at -0.5 v out- put and average gain	percent			5	
24.b (23.e)	Difference between gain at -1.5 v out- put and average gain	percent			5	
24.b (23.f)	Difference between gain at -2.5 v out- put and average gain	percent			5	
29	IMU STANDBY output (CG1513)	vdc	4.36		5.06	
30.a (29)	IMU OPERATE output (CG1503)	vdc	4.36		5.06	
30.b (29)	COMPUTER OPER- ATE output (CG1523)	vdc	4.36		5.06	
30.c (29)	OPTICS OPERATE output (CG1533)	vdc	4.36		5.06	
30.d (29)	GIMBAL LOCK output (CG5003)	vdc	3.92		4.22	
30.e (29)	G&N ERROR DE- TECT output (CG5005)	vdc	3.92		4.22	
30.f (29)	IMU TEMP FAIL output (CG5006)	vdc	3.92		4.22	
30.g (29)	IMU DELAY output (CG5008)	vdc	3.92		4.22	

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JDC
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JOB. SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
30.h (29)	COMPUTER PWR FAIL output (CG6030)	vdc	3.92		4.22	
34.a	IMU PRESSURE 5 v input (CG6000)	vdc	4.995		5.005	
34.b	IMU PRESSURE 10.2 v input	vdc	10.100		10.200	
34.c	IMU PRESSURE 20 v input	vdc	19.3		20.7	
35.a	Difference between output and 5 v input	vdc			0.004	
35.b	Difference between output and 10.2 v input	vdc			0.004	
35.c	IMU PRESSURE output at 20 v input	vdc	11.3		12.7	
40	PIPA TEMP output (CG2300)	vdc	4.800		5.200	
41.a (40)	IRIG TEMP output (CG2301)	vdc	4.800		5.200	
41.b (40)	IMU HEATER CURRENT output (CG2302)	vdc	4.800		5.200	

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JDC
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JOB. SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.e (40)	IMU BLOWER CURRENT output (CG2303)	vdc	4.800		5.200	
47	+2.5 V CONDI- TIONING output (CG1110)	vdc	2.475		2.525	
53	+28 VDC IMU output (CG1503)	vdc	27.6		28.4	

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (21.c)	OG TORQUE MTR gain at +0.5 v output	v/v				
24.b (21.d)	OG TORQUE MTR gain at -0.5 v output	v/v				
24.b (21.e)	OG TORQUE MTR gain at -1.5 v output	v/v				
24.b (21.f)	OG TORQUE MTR gain at -2.5 v output	v/v				
24.b (22)	OG TORQUE MTR average gain	v/v				
24.b (23.a)	Difference between gain at +2.5 v output and average gain	percent			5	
24.b (23.b)	Difference between gain at +1.5 v output and average gain	percent			5	
24.b (23.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.b (23.d)	Difference between gain at -0.5 v out- put and average gain	percent			5	
24.b (23.e)	Difference between gain at -1.5 v out- put and average gain	percent			5	
24.b (23.f)	Difference between gain at -2.5 v out- put and average gain	percent			5	
29	IMU STANDBY output (CG1513)	vdc	4.36		5.06	
30.a (29)	IMU OPERATE output (CG1503)	vdc	4.36		5.06	
30.b (29)	COMPUTER OPER- ATE output (CG1523)	vdc	4.36		5.06	
30.c (29)	OPTICS OPERATE output (CG1533)	vdc	4.36		5.06	
30.d (29)	GIMBAL LOCK output (CG6003)	vdc	3.92		4.22	
30.e (29)	G & N ERROR DE- TECT output (CG5005)	vdc	3.92		4.22	
30.f (29)	IMU TEMP FAIL output (CG8006)	vdc	3.92		4.22	
30.g (29)	IMU DELAY output (CG5008)	vdc	3.92		4.22	

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
30.h (29)	COMPUTER FWR FAIL output (CG5030)	vdc	3.92		4.22	
34.a	IMU PRESSURE 5 v input (CG6000)	vdc	4.995		5.005	
34.b	IMU PRESSURE 10.2 v input	vdc	10.100		10.200	
34.c	IMU PRESSURE 20 v input	vdc	19.3		20.7	
35.a	Difference between output and 5 v input	vdc			0.004	
35.b	Difference between output and 10.2 v input	vdc			0.004	
35.c	IMU PRESSURE output at 20 v input	vdc	11.3		12.7	
40	PIPA TEMP output (CG2300)	vdc	4.800		5.200	
41.a (40)	IRIG TEMP output (CG2301)	vdc	4.800		5.200	
41.b (40)	IMU HEATER CURRENT output (CG2302)	vdc	4.800		5.200	

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JDC
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JOB SIGNAL CONDITIONER SCALER AND DC CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.c (40)	IMU BLOWER CURRENT output (CG2303)	vdc	4.800		5.200	
47	+2.5 V CONDI- TIONING output (CG1110)	vdc	2.475		2.525	
53	+28 VDC IMU output (CG1503)	vdc	27.6		28.4	

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SUBSYSTEM ASSY.

DESCRIPTION Pre-installation acceptance testing of thermistor channels in Blk I (100 series) signal conditioner.

Rev. Let.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
			JDC	MIT NASA	spec 1007563
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		Signal Conditioner Module
		High	Low	High	Low	
95	AGC TEMP	J1-115	J1-97	P1-50	P1-71	Scaler
96	PSA TRAY 3 TEMP	J1-98	J1-97	P1-15	P1-71	
97	PSA TRAY 2 TEMP	J1-116	J1-97	P1-34	P1-71	
98	PSA TRAY 4 TEMP	J1-80	J1-97	P1-51	P1-71	

VERIFICATION WITH SIDL REQUIRED BEFORE USE

DATE

SUBSYSTEM ASSY

- Set crossbar to 10 (800 CPS 28V from MC240 amplifier).
 - Press PUSH TO ADVANCE, X BAR OUTPUT, and VOLTMETER on.
 - Press PUSH TO INITIATE on. If DVM does not indicate 28 (± 0.28) vrms, repeat steps B.1 through B.9 of JDC 18851 before proceeding.
 - Set crossbar to 95 (AGC TEMP channel).
 - Press PUSH TO ADVANCE.
 - Set decade resistance box to 5,000.
 - Press PUSH TO INITIATE on. Measure and record dc output voltage indicated on DVM.
 - Set decade resistance box to 1,630.
 - Measure and record dc output voltage indicated on DVM.
 - Press VOLTMETER off and SCOPE on.
 - Measure peak-to-peak ripple voltage on oscilloscope and record.
 - Press SCOPE off and VOLTMETER on.
 - Set crossbar to next position, listed below, and repeat steps 5 through 12 until all following tests are completed.
- Test XBAR Channel tested
- 96 PSA TRAY 3 TEMP
 - 97 PSA TRAY 2 TEMP
 - 98 PSA TRAY 4 TEMP

DATE

JOB SIGNAL CONDITIONER THERMISTOR CHANNEL TESTS - BLK I (100 series)

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	REV	SITE / LOCAT ON
NAME		SER. NO.	CAL DATE
NAME		SER. NO.	CAL DATE
CONDUCTED BY		APPROVED BY	
NAME/AFFILIATION		NAME/AFFILIATION	
JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE
			RECORDED VALUE
			MAX VALUE
			REJ ACC

NOTE
Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.

7	AGC TEMP output at 5,000 ohm Input (CG4300)	vdc	0.750	1.150	
9	AGC TEMP output at 1,630 ohm Input	vdc	1.850	2.450	
11	AGC TEMP ripple	mV p-p		40	

DATE

JOB SIGNAL CONDITIONER THERMISTOR CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
13.a (7)	PSA TRAY 3 TEMP output at 5,000 ohm Input (CG6020)	vdc	0.750		1.150	
13.a (9)	PSA TRAY 3 TEMP output at 1,630 ohm Input	vdc	1.850		2.450	
13.a (11)	PSA TRAY 3 TEMP ripple	mV p-p			40	
13.b (7)	PSA TRAY 2 TEMP output at 5,000 ohm Input (CG6021)	vdc	0.750		1.150	
13.b (9)	PSA TRAY 2 TEMP output at 1,630 ohm Input	vdc	1.850		2.450	
13.b (11)	PSA TRAY 2 TEMP ripple	mV p-p			40	
13.c (7)	PSA TRAY 4 TEMP output at 5,000 ohm Input (CG6022)	vdc	0.750		1.150	
13.c (9)	PSA TRAY 4 TEMP output at 1,630 ohm Input	vdc	1.850		2.450	
13.c (11)	PSA TRAY 4 TEMP ripple	mV p-p			40	

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SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of 3200 cps channels in Blk I (100 series) signal conditioner.

Rev.	Date	TDRR NO.	PAGES REVISED	APPROVAL	REFERENCES
A	11-16-67	35043	1-3	JDC MIT NASA EA 02 -	Procurement specs 1007662 and 2016145
					IMPORTANT
					INTERVAL
					TOOLS AND MATERIAL

NOTE: Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.

- Set crossbar to 10 (800 CPS 28V from MC240 amplifier).
- Press PUSH TO ADVANCE, X BAR OUTPUT, and VOLTMETER on.
- Press PUSH TO INITIATE on. If DVM does not indicate 28 (± 0.28) vrms, repeat steps B.1 through B.9 of JDC 18851 before proceeding.
- Disconnect inverter power supply from J7 and J8 on CONTROL PANEL.
- Connect DVM and counter to output of inverter power supply.
- Adjust inverter power supply and oscillator for 28 (± 0.28) vrms, 3200 (± 3.2) cps output. Record DVM and counter indications.
- Switch off inverter power supply and connect it to J7 and J8 (refer to figure 1 of JDC 18851).
- Connect DVM to CONTROL PANEL as shown in test setup.
- Set crossbar to 03 (3200 CPS 2V FEEDBACK channel).

VERIFICATION WITH SOL REQUIRED BEFORE USE
DATE 9 FEB 1967

SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of 3200 cps channels in Blk I (100 series) signal conditioner.

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		Signal Conditioner Module
		High	Low	High	Low	
12	X PIP ERROR	J1-95	J1-114	P1-85	P1-66	IRIG and PIPA
13	Y PIP ERROR	J1-96	J1-114	P1-101	P1-100	
14	Z PIP ERROR	J1-113	J1-114	P1-119	P1-120	
06	IMU IG & Y GYRO ERROR	J1-94	J1-93	P1-17	P1-72	
07	IMU MG GYRO ERROR	J1-112	J1-93	P1-18	P1-72	
08	IMU OG GYRO ERROR	J1-111	J1-93	P1-35	P1-72	
28	X PIP	P1-83	P1-66	P2-1	P2-2	
29	Y PIP	P1-101	P1-100	P2-4	P2-5	
30	Z PIP	P1-119	P1-120	P2-7	P2-8	

- Press 3200 CPS PH GEN, 3200 ~ EXC FIXED, and PUSH TO ADVANCE.
- Switch on inverter power supply. Adjust power supply until DVM indicates 2 (± 0.020) vrms, and counter indicates 3200 (± 3.2) cps. Record DVM and counter indications.
- Press SCOPE off, VOLTMETER on, and NORMAL.
- Set crossbar to 12 (X PIP ERROR channel).
- Press PUSH TO ADVANCE.
- Set 3200/800 CPS ADJUST to 0.00000.
- Press PUSH TO INITIATE on. Record dc offset voltage indicated on DVM.
- Set 3200 CPS PHASE GENERATOR to 315 (± 1.0) degrees.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage of 5.000 (± 0.005) vdc.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below.
- Set 3200 CPS PHASE GENERATOR as shown. Perform steps 20 and 21 for each voltage.
- Test 3200 CPS PHASE ADJUST GENERATOR for output:
 - 315 (± 1.0) deg 5.000 (± 0.005) vdc
 - 315 (± 1.0) deg 4.000 (± 0.005) vdc

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SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of 3200 cps channels in Blk I (100 series) signal conditioner.

- 315 (± 1.0) deg 3.000 (± 0.005) vdc
- 135 (± 1.0) deg 2.000 (± 0.005) vdc
- 135 (± 1.0) deg 1.000 (± 0.005) vdc
- 135 (± 1.0) deg 0.000 (± 0.005) vdc
- Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.
- Press X BAR OUTPUT and return to step 19 until all tests are completed.
- Compute and record gains a through f, using the following equation for each gain:
$$\text{GAIN} = \frac{E_{\text{out}}(\text{step 19}) - E_{\text{offset}}(\text{step 16})}{E_{\text{in}}(\text{step 20})}$$
- Add gains recorded in step 22, divide by 6 to find average gain, and record average.
- Compute and record percentage of difference between each gain, a through f, and the average gain.
- Set crossbar to next position, listed below, and repeat steps 14 through 24. Continue until all following tests are completed.

Test	XBAR	Channel tested
a.	13	Y PIP ERROR
b.	14	Z PIP ERROR

NOTE: Turn off MC240 amplifier for remainder of this JDC.
- Set crossbar to 06 (IMU IG & Y GYRO ERROR channel).
- Press PUSH TO ADVANCE.
- Set 3200 CPS PHASE GENERATOR to 0 (± 1.0) degree.
- Set 3200/800 CPS ADJUST to 0.00000.
- Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage of 2.500 (± 0.005) vdc.
- Press X BAR INPUT and record ac input voltage indicated on DVM.
- Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
- Measure peak-to-peak ripple voltage on oscilloscope and record.
- Press SCOPE off and VOLTMETER on.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Perform steps 37 and 38 for each voltage.
- Set 3200 CPS PHASE GENERATOR to 180 (± 1.0) degrees to obtain negative outputs.

Test	Adjust 3200/800 CPS ADJUST for output:
a.	+2.500 (± 0.005) vdc
b.	+1.500 (± 0.005) vdc
c.	+0.500 (± 0.005) vdc
d.	-0.500 (± 0.005) vdc
e.	-1.500 (± 0.005) vdc
f.	-2.500 (± 0.005) vdc
- Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.
- Press X BAR OUTPUT and return to step 36 until all tests are completed.

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SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of 3200 cps channels in Blk I (100 series) signal conditioner.

- Compute and record gains a through f, using the following equation for each gain:
$$\text{GAIN} = \frac{E_{\text{out}}(\text{step 36}) - E_{\text{offset}}(\text{step 30})}{E_{\text{in}}(\text{step 37})}$$
- Add gains recorded in step 39, divide by 6 to find average gain, and record average.
- Compute and record percentage of difference between each gain, a through f, and average gain.
- Set crossbar to next position, listed below, and repeat steps 27 through 41 until all following tests are completed.

Test	XBAR	Channel tested
a.	07	IMU MG ERROR
b.	08	IMU OG ERROR
- Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR INPUT.
- Adjust 3200/800 CPS ADJUST until DVM indicates 5.000 (± 0.001) vrms.
- Press X BAR OUTPUT. Measure and record ac output voltage indicated on DVM.
- Set crossbar to next position, listed below, and repeat steps 44 through 46 until all following tests are completed.

Test	XBAR	Channel tested
a.	29	Y PIP
b.	30	Z PIP

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INITIAL TDRR 32928

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE	DATE	START	END
SER. NO.	DWG	REV.	SITE / LOCATION
MAJOR GROUND SUPPORT EQUIPMENT		TIME	END
		START	TOTAL ELAPSED
NAME	SER. NO.	CAL DATE	
NAME	SER. NO.	CAL DATE	
CONDUCTED BY		APPROVED BY	
NAME/AFFILIATION		NAME/AFFILIATION	

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
NOTE Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.						
6	3200 cps power	vrms	27.72		28.28	
		cps	3196.8		3203.2	
11	3200 CPS 2V FEEDBACK output	vrms	1.980		2.020	
		cps	3196.8		3203.2	
16	X PIP ERROR offset	vdc	2.200		2.800	
20.a	X PIP ERROR Input at 5 v output	vrms	4.73		5.77	

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FORM 100-10
CIG 7-60

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EQUIPMENT TEST
DATA SHEET 2 OF 19

JDC
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REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
20.b	X PIP ERROR Input at 4 v output	vrms				
20.c	X PIP ERROR Input at 3 v output	vrms				
20.d	X PIP ERROR Input at 2 v output	vrms				
20.e	X PIP ERROR Input at 1 v output	vrms				
20.f	X PIP ERROR Input at 0 v output	vrms				

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EQUIPMENT TEST
DATA SHEET 3 OF 19

JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
22.a	X PIP ERROR gain at 5 v output	v/v				
22.b	X PIP ERROR gain at 4 v output	v/v				
22.c	X PIP ERROR gain at 3 v output	v/v				
22.d	X PIP ERROR gain at 2 v output	v/v				
22.e	X PIP ERROR gain at 1 v output	v/v				
22.f	X PIP ERROR gain at 0 v output	v/v				
23	X PIP ERROR average gain	v/v				
24.a	Difference between gain at 5 v output and average gain	percent			5	
24.b	Difference between gain at 4 v output and average gain	percent			5	

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EQUIPMENT TEST
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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.c	Difference between gain at 3 v output and average gain	percent			5	
24.d	Difference between gain at 2 v output and average gain	percent			5	
24.e	Difference between gain at 1 v output and average gain	percent			5	
24.f	Difference between gain at 0 v output and average gain	percent			5	
25.a (16)	Y PIP ERROR offset	vdc	2.200		2.800	

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JDC
NO. 18855
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
25.a (20.a)	Y PIP ERROR Input at 5 v output	v rms	4.73		5.77		
25.a (20.b)	Y PIP ERROR Input at 4 v output	v rms					
25.a (20.c)	Y PIP ERROR Input at 3 v output	v rms					
25.a (20.d)	Y PIP ERROR Input at 2 v output	v rms					
25.a (20.e)	Y PIP ERROR Input at 1 v output	v rms					
25.a (20.f)	Y PIP ERROR Input at 0 v output	v rms					

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
25.a (22.a)	Y PIP ERROR gain at 5 v output	v/v					
25.a (22.b)	Y PIP ERROR gain at 4 v output	v/v					
25.a (22.c)	Y PIP ERROR gain at 3 v output	v/v					
25.a (22.d)	Y PIP ERROR gain at 2 v output	v/v					
25.a (22.e)	Y PIP ERROR gain at 1 v output	v/v					
25.a (22.f)	Y PIP ERROR gain at 0 v output	v/v					
25.a (23)	Y PIP ERROR average gain	v/v					
25.a (24.a)	Difference between gain at 5 v output and average gain	percent			5		
25.a (24.b)	Difference between gain at 4 v output and average gain	percent			5		

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JDC
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REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
25.a (24.c)	Difference be- tween gain at 3 v output and average gain	percent			5		
25.a (24.d)	Difference be- tween gain at 2 v output and average gain	percent			5		
25.a (24.e)	Difference be- tween gain at 1 v output and average gain	percent			5		
25.a (24.f)	Difference be- tween gain at 0 v output and average gain	percent			5		
25.b (16)	Z PIP ERROR offset	v dc	2.200		2.800		

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JDC
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REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
25.b (20.a)	Z PIP ERROR Input at 5 v output	v rms	4.73		5.77		
25.b (20.b)	Z PIP ERROR Input at 4 v output	v rms					
25.b (20.c)	Z PIP ERROR Input at 3 v output	v rms					
25.b (20.d)	Z PIP ERROR Input at 2 v output	v rms					
25.b (20.e)	Z PIP ERROR Input at 1 v output	v rms					
25.b (20.f)	Z PIP ERROR Input at 0 v output	v rms					

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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.b (22.a)	Z PIP ERROR gain at 5 v output	v/v				
25.b (22.b)	Z PIP ERROR gain at 4 v output	v/v				
25.b (22.c)	Z PIP ERROR gain at 3 v output	v/v				
25.b (22.d)	Z PIP ERROR gain at 2 v output	v/v				
25.b (22.e)	Z PIP ERROR gain at 1 v output	v/v				
25.b (22.f)	Z PIP ERROR gain at 0 v output	v/v				
25.b (23)	Z PIP ERROR average gain	v/v				
25.b (24.a)	Difference between gain at 5 v output and average gain	percent			5	
25.b (24.b)	Difference between gain at 4 v output and average gain	percent			5	

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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.b (24.a)	Difference between gain at 3 v output and average gain	percent			5	
25.b (24.d)	Difference between gain at 2 v output and average gain	percent			5	
25.b (24.e)	Difference between gain at 1 v output and average gain	percent			5	
25.b (24.f)	Difference between gain at 0 v output and average gain	percent			5	
30	IMU IG & Y GYRO ERROR offset (CG2117)	mv	-40*		+40*	
32	IMU IG & Y GYRO ERROR input	v rms	4.73		5.77	
34	IMU IG & Y GYRO ERROR ripple	mvp-p			15	

*Some output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage is listed as 0 (-40) mv, add +2.5 to each output for the channel to determine output voltages in actual system operation.

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EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
37.a	IMU IG & Y GYRO ERROR input at +2.5 v output	v rms				
37.b	IMU IG & Y GYRO ERROR input at +1.5 v output	v rms				
37.c	IMU IG & Y GYRO ERROR input at +0.5 v output	v rms				
37.d	IMU IG & Y GYRO ERROR input at -0.5 v output	v rms				
37.e	IMU IG & Y GYRO ERROR input at -1.5 v output	v rms				
37.f	IMU IG & Y GYRO ERROR input at -2.5 v output	v rms				
39.a	IMU IG & Y GYRO ERROR gain at +2.5 v output	v/v				
39.b	IMU IG & Y GYRO ERROR gain at +1.5 v output	v/v				

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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
39.c	IMU IG & Y GYRO ERROR gain at +0.5 v output	v/v				
39.d	IMU IG & Y GYRO ERROR gain at -0.5 v output	v/v				
39.e	IMU IG & Y GYRO ERROR gain at -1.5 v output	v/v				
39.f	IMU IG & Y GYRO ERROR gain at -2.5 v output	v/v				
40	IMU IG & Y GYRO ERROR average gain	v/v				
41.a	Difference between gain at +2.5 v out- put and average gain	percent			5	
41.b	Difference between gain at +1.5 v out- put and average gain	percent			5	
41.c	Difference between gain at +0.5 v out- put and average gain	percent			5	

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EQUIPMENT TEST
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JDC
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REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.d	Difference between gain at -0.5 v output and average gain	percent			5	
41.e	Difference between gain at -1.5 v output and average gain	percent			5	
41.f	Difference between gain at -2.5 v output and average gain	percent			5	
42.a (30)	IMU MG ERROR offset (CG2147)	mv	-40		+40	
42.a (32)	IMU MG ERROR input	v rms	4.73		5.77	
42.a (34)	IMU MG ERROR ripple	mv p-p			15	
42.a (37.a)	IMU MG ERROR input at +2.5 v output	v rms				

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EQUIPMENT TEST
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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (37.b)	IMU MG ERROR input at +1.5 v output	v rms				
42.a (37.c)	IMU MG ERROR input at +0.5 v output	v rms				
42.a (37.d)	IMU MG ERROR input at -0.5 v output	v rms				
42.a (37.e)	IMU MG ERROR input at -1.5 v output	v rms				
42.a (37.f)	IMU MG ERROR input at -2.5 v output	v rms				
42.a (39.a)	IMU MG ERROR gain at +2.5 v output	v/v				
42.a (39.b)	IMU MG ERROR gain at +1.5 v output	v/v				

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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (39.c)	IMU MG ERROR gain at +0.5 v output	v/v				
42.a (39.d)	IMU MG ERROR gain at -0.5 v output	v/v				
42.a (39.e)	IMU MG ERROR gain at -1.5 v output	v/v				
42.a (39.f)	IMU MG ERROR gain at -2.5 v output	v/v				
42.a (40)	IMU MG ERROR average gain	v/v				
42.a (41.a)	Difference between gain at +2.5 v output and average gain	percent			5	
42.a (41.b)	Difference between gain at +1.5 v output and average gain	percent			5	
42.a (41.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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APOLLO G&N
EQUIPMENT TEST
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JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (41.d)	Difference between gain at -0.5 v output and average gain	percent			5	
42.a (41.e)	Difference between gain at -1.5 v output and average gain	percent			5	
42.a (41.f)	Difference between gain at -2.5 v output and average gain	percent			5	
42.b (30)	IMU OG ERROR offset (CG2177)	mv	-40		+40	
42.b (32)	IMU OG ERROR input	v rms	4.73		5.77	
42.b (34)	IMU OG ERROR ripple	mv p-p			15	
42.b (37.a)	IMU OG ERROR input at +2.5 v output	v rms				

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EQUIPMENT TEST
DATA SHEET 17 OF 19

JDC
NO. 18853
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
42.b (37.b)	IMU OG ERROR input at +1.5 v output	v rms				
42.b (37.c)	IMU OG ERROR input at +0.5 v output	v rms				
42.b (37.d)	IMU OG ERROR input at -0.5 v output	v rms				
42.b (37.e)	IMU OG ERROR input at -1.5 v output	v rms				
42.b (37.f)	IMU OG ERROR input at -2.5 v output	v rms				
42.b (39.a)	IMU OG ERROR gain at +2.5 v output	v/v				
42.b (39.b)	IMU OG ERROR gain at +1.5 v output	v/v				

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APOLLO G8N
EQUIPMENT TEST
DATA SHEET 18 OF 19

JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
42.b (39.c)	IMU OG ERROR gain at +0.5 v output	v/v				
42.b (39.d)	IMU OG ERROR gain at -0.5 v output	v/v				
42.b (39.e)	IMU OG ERROR gain at -1.5 v output	v/v				
42.b (39.f)	IMU OG ERROR gain at -2.5 v output	v/v				
42.b (40)	IMU OG ERROR average gain	v/v				
42.b (41.a)	Difference between gain at +2.5 v output and average gain	percent			5	
42.b (41.b)	Difference between gain at +1.5 v output and average gain	percent			5	
42.b (41.c)	Difference between gain at -0.5 v output and average gain	percent			5	

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DATA SHEET 19 OF 19

JDC
NO. 18855
REV. A

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ/ACC
42.b (41.d)	Difference between gain at -0.5 v output and average gain	percent			5	
42.b (41.e)	Difference between gain at -1.5 v output and average gain	percent			5	
42.b (41.f)	Difference between gain at -2.5 v output and average gain	percent			5	
46	X PIP output	v rms	4.80		5.20	
47.a (46)	Y PIP output	v rms	4.80		5.20	
47.b (46)	Z PIP output	v rms	4.80		5.20	

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SUBSYSTEM
DESCRIPTION Pre-installation acceptance testing of 3200 cps channels in Blk I (100 series) signal conditioner.

Rev. Let.	Date	TORR NO.	PAGES REVISED		APPROVAL	REFERENCES
			JDC	D.S.		
					M.T. NASA	Procurement spec 1007162
						IMPORTANT
						INTERVAL
						TOOLS AND MATERIAL

NOTE: Table 1 is provided as an aid for checkout and trouble analysis. The table lists crossbar setting, signal name, input pins, output pins, and signal conditioner module.

- Set crossbar to 10 (800 CPS 28V from MC240 amplifier).
- Press PUSH TO ADVANCE, X BAR OUTPUT, and VOLTMETER on.
- Press PUSH TO INITIATE on. If DVM does not indicate 28 (±0.28) vrms, repeat steps B.1 through B.9 of JDC 18851 before proceeding.
- Disconnect inverter power supply from J7 and J8 on CONTROL PANEL.
- Connect DVM and counter to output of inverter power supply.
- Adjust inverter power supply and oscillator for 28 (±0.28) vrms, 3200 (±3.2) cps output. Record DVM and counter indications.
- Switch off inverter power supply and connect it to J7 and J8 (refer to figure 1 of JDC 18851).
- Connect DVM to CONTROL PANEL as shown in test setup.
- Set crossbar to 03 (3200 CPS 2V FEEDBACK channel).

VERIFICATION WITH SIDL REQUIRED BEFORE USE

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SUBSYSTEM

Table 1. Crossbar and Channel Identification List

Crossbar Setting	Signal Conditioner Channel	Signal Conditioner Input Pins		Signal Conditioner Output Pins		Signal Conditioner Module
		High	Low	High	Low	
12	X PIP ERROR	J1-95	J1-114	P2-16	P2-17	IRIG and PIPA
13	Y PIP ERROR	J1-96	J1-114	P2-14	P2-15	
14	Z PIP ERROR	J1-113	J1-114	P2-18	P2-19	
06	IMU IG & Y GYRO ERROR	J1-94	J1-93	P1-17	P1-71	
07	IMU MG GYRO ERROR	J1-112	J1-93	P1-18	P1-71	
08	IMU OG GYRO ERROR	J1-111	J1-93	P1-35	P1-71	
28	X PIP	J1-83	J1-86	P2-1	P2-2	
29	Y PIP	J1-101	J1-100	P2-4	P2-5	
30	Z PIP	J1-119	J1-120	P2-7	P2-8	

- Press 3200 CPS PH GEN, 3200 ~ EXC FIXED, and PUSH TO ADVANCE.
- Switch on inverter power supply. Adjust power supply until DVM indicates 2 (±0.020) vrms, and counter indicates 3200 (±3.2) cps. Record DVM and counter indications.
- Press SCOPE off, VOLTMETER on, and NORMAL.
- Set crossbar to 12 (X PIP ERROR channel).
- Press PUSH TO ADVANCE.
- Set 3200/800 CPS ADJUST to 0.00000.
- Press PUSH TO INITIATE on. Record dc offset voltage indicated on DVM.
- Set 3200 CPS PHASE GENERATOR to 315 (±0.1) degrees.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage of 5.000 (±0.005) vdc.
- Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below.
- Set 3200 CPS PHASE GENERATOR as shown. Perform steps 20 and 21 for each voltage.
- Test 3200 CPS PHASE GENERATOR for output setting:
 - 315 (±0.1) deg 5.000 (±0.005) vdc
 - 315 (±0.1) deg 4.000 (±0.005) vdc

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SUBSYSTEM

- 315 (±0.1) deg 3.000 (±0.005) vdc
 - 135 (±0.1) deg 2.000 (±0.005) vdc
 - 135 (±0.1) deg 1.000 (±0.005) vdc
 - 135 (±0.1) deg 0.000 (±0.005) vdc
- Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.
 - Press X BAR OUTPUT and return to step 19 until all tests are completed.
 - Compute and record gains a through f, using the following equation for each gain:

$$\text{GAIN} = \frac{E_{\text{out}}(\text{step 19}) - E_{\text{offset}}(\text{step 16})}{E_{\text{in}}(\text{step 20})}$$
 - Add gains recorded in step 22, divide by 6 to find average gain, and record average.
 - Compute and record percentage of difference between each gain, a through f, and the average gain.
 - Set crossbar to next position, listed below, and repeat steps 14 through 24. Continue until all following tests are completed.

Test	XBAR	Channel tested
a.	13	Y PIP ERROR
b.	14	Z PIP ERROR
 - Set crossbar to 06 (IMU IG & Y GYRO ERROR channel).
 - Press PUSH TO ADVANCE.
 - Set 3200 CPS PHASE GENERATOR to 0 (±0.1) degree.
 - Set 3200/800 CPS ADJUST to 0.00000.
 - Press PUSH TO INITIATE on and record value and polarity of offset voltage indicated on DVM.
 - Adjust 3200/800 CPS ADJUST until DVM indicates output voltage of 2.500 (±0.005) vdc.
 - Press X BAR INPUT and record ac input voltage indicated on DVM.
 - Press X BAR OUTPUT, VOLTMETER off, and SCOPE on.
 - Measure peak-to-peak ripple voltage on oscilloscope and record.
 - Press SCOPE off and VOLTMETER on.
 - Adjust 3200/800 CPS ADJUST until DVM indicates output voltage listed below. Perform steps 37 and 38 for each voltage.

Test	ADJUST for output
a.	+2.500 (±0.005) vdc
b.	+1.500 (±0.005) vdc
c.	+0.500 (±0.005) vdc
d.	-0.500 (±0.005) vdc
e.	-1.500 (±0.005) vdc
f.	-2.500 (±0.005) vdc
 - Press X BAR INPUT. Measure and record ac input voltage indicated on DVM for tests a through f.
 - Press X BAR OUTPUT and return to step 36 until all tests are completed.

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- Compute and record gains a through f, using the following equation for each gain:

$$\text{GAIN} = \frac{E_{\text{out}}(\text{step 36}) - E_{\text{offset}}(\text{step 30})}{E_{\text{in}}(\text{step 37})}$$
- Add gains recorded in step 39, divide by 6 to find average gain, and record average.
- Compute and record percentage of difference between each gain, a through f, and average gain.
- Set crossbar to next position, listed below, and repeat steps 27 through 41 until all following tests are completed.

Test	XBAR	Channel tested
a.	07	IMU MG ERROR
b.	08	IMU OG ERROR
- Set crossbar to 28 (X PIP channel).
- Press PUSH TO ADVANCE, PUSH TO INITIATE on, and X BAR INPUT.
- Adjust 3200/800 CPS ADJUST until DVM indicates 5.000 (±0.001) vrms.
- Press X BAR OUTPUT. Measure and record ac output voltage indicated on DVM.
- Set crossbar to next position, listed below, and repeat steps 44 through 46 until all following tests are completed.

Test	XBAR	Channel tested
a.	29	Y PIP
b.	30	Z PIP

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APOLLO G&N
EQUIPMENT TEST
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JDC
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INITIAL TDRR 32728

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

ASSEMBLY UNDER TEST		TEST HISTORY	
TITLE _____	DATE _____	START _____	END _____
SER. NO. _____	DWG. REV. _____	TIME START _____	END _____
TOTAL ELAPSED _____			
MAJOR GROUND SUPPORT EQUIPMENT			
NAME _____	SER. NO. _____	CAL DATE _____	
NAME _____	SER. NO. _____	CAL DATE _____	
CONDUCTED BY _____		APPROVED BY _____	
NAME/AFFILIATION _____		NAME/AFFILIATION _____	

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
NOTE Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.						
6	3200 cps power	vrms	27.72		28.28	
		cps	3196.8		3203.2	
11	3200 CPS 2V	vrms	1.980		2.020	
	FEEDBACK output	cps	3196.8		3203.2	
16	X PIP ERROR offset	vdc	2.200		2.800	
20.a	X PIP ERROR Input at 5 v output	vrms	4.73		5.77	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 2 OF 19

JDC
NO. 18855
REV. _____

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
20.b	X PIP ERROR Input at 4 v out- put	vrms				
20.c	X PIP ERROR Input at 3 v out- put	vrms				
20.d	X PIP ERROR Input at 2 v out- put	vrms				
20.e	X PIP ERROR Input at 1 v out- put	vrms				
20.f	X PIP ERROR Input at 0 v out- put	vrms				

APOLLO G&N
EQUIPMENT TEST
DATA SHEET 3 OF 19

JDC
NO. 18855
REV. _____

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
22.a	X PIP ERROR gain at 5 v output	v/v				
22.b	X PIP ERROR gain at 4 v output	v/v				
22.c	X PIP ERROR gain at 3 v output	v/v				
22.d	X PIP ERROR gain at 2 v output	v/v				
22.e	X PIP ERROR gain at 1 v output	v/v				
22.f	X PIP ERROR gain at 0 v output	v/v				
23	X PIP ERROR average gain	v/v				
24.a	Difference between gain at 5 v output and average gain	percent			5	
24.b	Difference between gain at 4 v output and average gain	percent			5	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 4 OF 19

JDC
NO. 18855
REV. _____

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.c	Difference be- tween gain at 3 v output and average gain	percent			5	
24.d	Difference be- tween gain at 2 v output and average gain	percent			5	
24.e	Difference be- tween gain at 1 v output and average gain	percent			5	
24.f	Difference be- tween gain at 0 v output and average gain	percent			5	
25.a (16)	Y PIP ERROR offset	vdc	2.200		2.800	

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APOLLO 68N
EQUIPMENT TEST
DATA SHEET 1 OF 19

JDC
NO. 18855
REV. 32729
INITIAL TDRR

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

ASSEMBLY UNDER TEST				TEST HISTORY			
TITLE	DATE	START	END	SITE / LOCATION	TIME	START	END
SER. NO.	DWG	REV.			TOTAL ELAPSED		
MAJOR GROUND SUPPORT EQUIPMENT							
NAME	SER. NO.	CAL DATE					
NAME	SER. NO.	CAL DATE					
CONDUCTED BY				APPROVED BY			
NAME/AFFILIATION				NAME/AFFILIATION			

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
6	3200 cps power	v rms	27.72		28.28	
		cps	3196.8		3203.2	
11	3200 CPS 2V	v rms	1.980		2.020	
	FEEDBACK output	cps	3196.8		3203.2	
16	X PIP ERROR offset	vdc	2.200		2.800	
20.a	X PIP ERROR Input at 5 v output	v rms	4.73		5.77	

NOTE
Letter-number combinations in parentheses beneath step numbers denote procedural steps being repeated. CG number is listed in first data sheet entry for each channel.

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EQUIPMENT TEST
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JDC
NO. 18855
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
20.b	X PIP ERROR Input at 4 v output	v rms				
20.c	X PIP ERROR Input at 3 v output	v rms				
20.d	X PIP ERROR Input at 2 v output	v rms				
20.e	X PIP ERROR Input at 1 v output	v rms				
20.f	X PIP ERROR Input at 0 v output	v rms				

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EQUIPMENT TEST
DATA SHEET 3 OF 19

JDC
NO. 18855
REV.

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
22.a	X PIP ERROR gain at 5 v output	v/v				
22.b	X PIP ERROR gain at 4 v output	v/v				
22.c	X PIP ERROR gain at 3 v output	v/v				
22.d	X PIP ERROR gain at 2 v output	v/v				
22.e	X PIP ERROR gain at 1 v output	v/v				
22.f	X PIP ERROR gain at 0 v output	v/v				
23	X PIP ERROR average gain	v/v				
24.a	Difference between gain at 5 v output and average gain	percent			5	
24.b	Difference between gain at 4 v output and average gain	percent			5	

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APOLLO 68N
EQUIPMENT TEST
DATA SHEET 4 OF 19

JDC
NO. 18855
REV.

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
24.c	Difference between gain at 3 v output and average gain	percent			5	
24.d	Difference between gain at 2 v output and average gain	percent			5	
24.e	Difference between gain at 1 v output and average gain	percent			5	
24.f	Difference between gain at 0 v output and average gain	percent			5	
25.a (16)	Y PIP ERROR offset	vdc	2.200		2.800	

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APOLLO G&N
EQUIPMENT TEST
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JDC
NO. 18855
REV. 1

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.a (20.a)	Y PIP ERROR Input at 5 v output	vrms	4.73		5.77	
25.a (20.b)	Y PIP ERROR Input at 4 v output	vrms				
25.a (20.c)	Y PIP ERROR Input at 3 v output	vrms				
25.a (20.d)	Y PIP ERROR Input at 2 v output	vrms				
25.a (20.e)	Y PIP ERROR Input at 1 v output	vrms				
25.a (20.f)	Y PIP ERROR Input at 0 v output	vrms				

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 6 OF 19

JDC
NO. 18855
REV. 1

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.a (22.a)	Y PIP ERROR gain at 5 v output	v/v				
25.a (22.b)	Y PIP ERROR gain at 4 v output	v/v				
25.a (22.c)	Y PIP ERROR gain at 3 v output	v/v				
25.a (22.d)	Y PIP ERROR gain at 2 v output	v/v				
25.a (22.e)	Y PIP ERROR gain at 1 v output	v/v				
25.a (22.f)	Y PIP ERROR gain at 0 v output	v/v				
25.a (23)	Y PIP ERROR average gain	v/v				
25.a (24.a)	Difference between gain at 5 v output and average gain	percent			5	
25.a (24.b)	Difference between gain at 4 v output and average gain	percent			5	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 7 OF 19

JDC
NO. 18855
REV. 1

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.a (24.c)	Difference be- tween gain at 3 v output and average gain	percent			5	
25.a (24.d)	Difference be- tween gain at 2 v output and average gain	percent			5	
25.a (24.e)	Difference be- tween gain at 1 v output and average gain	percent			5	
25.a (24.f)	Difference be- tween gain at 0 v output and average gain	percent			5	
25.b (16)	Z PIP ERROR offset	vdc	2.200		2.800	

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APOLLO G&N
EQUIPMENT TEST
DATA SHEET 8 OF 19

JDC
NO. 18855
REV. 1

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.b (20.a)	Z PIP ERROR Input at 5 v output	vrms	4.73		5.77	
25.b (20.b)	Z PIP ERROR Input at 4 v output	vrms				
25.b (20.c)	Z PIP ERROR Input at 3 v output	vrms				
25.b (20.d)	Z PIP ERROR Input at 2 v output	vrms				
25.b (20.e)	Z PIP ERROR Input at 1 v output	vrms				
25.b (20.f)	Z PIP ERROR Input at 0 v output	vrms				

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EQUIPMENT TEST
DATA SHEET 5 OF 19

JDC
NO. 18855
REV. ---

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.a (20.a)	Y PIP ERROR Input at 5 v output	vrms	4.73		5.77	
25.a (20.b)	Y PIP ERROR Input at 4 v output	vrms				
25.a (20.c)	Y PIP ERROR Input at 3 v output	vrms				
25.a (20.d)	Y PIP ERROR Input at 2 v output	vrms				
25.a (20.e)	Y PIP ERROR Input at 1 v output	vrms				
25.a (20.f)	Y PIP ERROR Input at 0 v output	vrms				

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EQUIPMENT TEST
DATA SHEET 6 OF 19

JDC
NO. 18855
REV. ---

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.a (22.a)	Y PIP ERROR gain at 5 v output	v/v				
25.a (22.b)	Y PIP ERROR gain at 4 v output	v/v				
25.a (22.c)	Y PIP ERROR gain at 3 v output	v/v				
25.a (22.d)	Y PIP ERROR gain at 2 v output	v/v				
25.a (22.e)	Y PIP ERROR gain at 1 v output	v/v				
25.a (22.f)	Y PIP ERROR gain at 0 v output	v/v				
25.a (23)	Y PIP ERROR average gain	v/v				
25.a (24.a)	Difference between gain at 5 v output and average gain	percent			5	
25.a (24.b)	Difference between gain at 4 v output and average gain	percent			5	

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EQUIPMENT TEST
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JDC
NO. 18855
REV. ---

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.a (24.c)	Difference be- tween gain at 3 v output and average gain	percent			5	
25.a (24.d)	Difference be- tween gain at 2 v output and average gain	percent			5	
25.a (24.e)	Difference be- tween gain at 1 v output and average gain	percent			5	
25.a (24.f)	Difference be- tween gain at 0 v output and average gain	percent			5	
25.b (16)	Z PIP ERROR offset	vdcs	2.200		2.800	

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APOLLO G8N
EQUIPMENT TEST
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JDC
NO. 18855
REV. ---

JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.b (20.a)	Z PIP ERROR Input at 5 v output	vrms	4.73		5.77	
25.b (20.b)	Z PIP ERROR Input at 4 v output	vrms				
25.b (20.c)	Z PIP ERROR Input at 3 v output	vrms				
25.b (20.d)	Z PIP ERROR Input at 2 v output	vrms				
25.b (20.e)	Z PIP ERROR Input at 1 v output	vrms				
25.b (20.f)	Z PIP ERROR Input at 0 v output	vrms				

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / ACC
25.b (22.a)	Z PIP ERROR gain at 5 v output	v/v				
25.b (22.b)	Z PIF ERROR gain at 4 v output	v/v				
25.b (22.c)	Z PIP ERROR gain at 3 v output	v/v				
25.b (22.d)	Z PIP ERROR gain at 2 v output	v/v				
25.b (22.e)	Z PIP ERROR gain at 1 v output	v/v				
25.b (22.f)	Z PIP ERROR gain at 0 v output	v/v				
25.b (23)	Z PIP ERROR average gain	v/v				
25.b (24.a)	Difference between gain at 5 v output and average gain	percent			5	
25.b (24.b)	Difference between gain at 4 v output and average gain	percent			5	

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EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / ACC
25.b (24.c)	Difference between gain at 3 v output and average gain	percent			5	
25.b (24.d)	Difference between gain at 2 v output and average gain	percent			5	
25.b (24.e)	Difference between gain at 1 v output and average gain	percent			5	
25.b (24.f)	Difference between gain at 0 v output and average gain	percent			5	
30	IMU IG & Y GYRO ERROR offset (CG2117)	mv	-40*		+40*	
32	IMU IG & Y GYRO ERROR input	vrms	4.73		5.77	
34	IMU IG & Y GYRO ERROR ripple	mvp-p			15	

*Some output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage is listed as 0 (+40) mv, add +2.5 to each output for the channel to determine output voltages in actual system operation.

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EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / CC
37.a	IMU IG & Y GYRO ERROR input at +2.5 v output	vrms				
37.b	IMU IG & Y GYRO ERROR input at +1.5 v output	vrms				
37.c	IMU IG & Y GYRO ERROR input at +0.5 v output	vrms				
37.d	IMU IG & Y GYRO ERROR input at -0.5 v output	vrms				
37.e	IMU IG & Y GYRO ERROR input at -1.5 v output	vrms				
37.f	IMU IG & Y GYRO ERROR input at -2.5 v output	vrms				
39.a	IMU IG & Y GYRO ERROR gain at +2.5 v output	v/v				
39.b	IMU IG & Y GYRO ERROR gain at +1.5 v output	v/v				

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EQUIPMENT TEST
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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ / ACC
39.c	IMU IG & Y GYRO ERROR gain at +0.5 v output	v/v				
39.d	IMU IG & Y GYRO ERROR gain at -0.5 v output	v/v				
39.e	IMU IG & Y GYRO ERROR gain at -1.5 v output	v/v				
39.f	IMU IG & Y GYRO ERROR gain at -2.5 v output	v/v				
40	IMU IG & Y GYRO ERROR average gain	v/v				
41.a	Difference between gain at +2.5 v out- put and average gain	percent			5	
41.b	Difference between gain at +1.5 v out- put and average gain	percent			5	
41.c	Difference between gain at +0.5 v out- put and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.b (22.a)	Z PIP ERROR gain at 5 v output	v/v				
25.b (22.b)	Z PIP ERROR gain at 4 v output	v/v				
25.b (22.c)	Z PIP ERROR gain at 3 v output	v/v				
25.b (22.d)	Z PIP ERROR gain at 2 v output	v/v				
25.b (22.e)	Z PIP ERROR gain at 1 v output	v/v				
25.b (22.f)	Z PIP ERROR gain at 0 v output	v/v				
25.b (23)	Z PIP ERROR average gain	v/v				
25.b (24.a)	Difference between gain at 5 v output and average gain	percent			5	
25.b (24.b)	Difference between gain at 4 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
25.b (24.c)	Difference between gain at 3 v output and average gain	percent			5	
25.b (24.d)	Difference between gain at 2 v output and average gain	percent			5	
25.b (24.e)	Difference between gain at 1 v output and average gain	percent			5	
25.b (24.f)	Difference between gain at 0 v output and average gain	percent			5	
30	IMU IG & Y GYRO ERROR offset (CG2117)	mv	-40*		+40*	
32	IMU IG & Y GYRO ERROR input	vrms	4.73		5.77	
34	IMU IG & Y GYRO ERROR ripple	mvp-p			15	

*Some output voltages in this JDC are 2.5 volts lower than those in actual system operation. If offset voltage is listed as 0 (+40) mv, add +2.5 to each output for the channel to determine output voltages in actual system operation.

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
37.a	IMU IG & Y GYRO ERROR input at +2.5 v output	vrms				
37.b	IMU IG & Y GYRO ERROR input at +1.5 v output	vrms				
37.c	IMU IG & Y GYRO ERROR input at +0.5 v output	vrms				
37.d	IMU IG & Y GYRO ERROR input at -0.5 v output	vrms				
37.e	IMU IG & Y GYRO ERROR input at -1.5 v output	vrms				
37.f	IMU IG & Y GYRO ERROR input at -2.5 v output	vrms				
39.a	IMU IG & Y GYRO ERROR gain at +2.5 v output	v/v				
39.b	IMU IG & Y GYRO ERROR gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
39.c	IMU IG & Y GYRO ERROR gain at +0.5 v output	v/v				
39.d	IMU IG & Y GYRO ERROR gain at -0.5 v output	v/v				
39.e	IMU IG & Y GYRO ERROR gain at -1.5 v output	v/v				
39.f	IMU IG & Y GYRO ERROR gain at -2.5 v output	v/v				
40	IMU IG & Y GYRO ERROR average gain	v/v				
41.a	Difference between gain at +2.5 v out- put and average gain	percent			5	
41.b	Difference between gain at +1.5 v out- put and average gain	percent			5	
41.c	Difference between gain at +0.5 v out- put and average gain	percent			5	

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.d	Difference between gain at -0.5 v output and average gain	percent			5	
41.e	Difference between gain at -1.5 v output and average gain	percent			5	
41.f	Difference between gain at -2.5 v output and average gain	percent			5	
42.a (30)	IMU MG ERROR offset (CG2147)	mv	-40		+40	
42.a (32)	IMU MG ERROR input	v rms	4.73		5.77	
42.a (34)	IMU MG ERROR ripple	mv p-p			15	
42.a (37.a)	IMU MG ERROR input at +2.5 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (37.b)	IMU MG ERROR input at +1.5 v output	v rms				
42.a (37.c)	IMU MG ERROR input at +0.5 v output	v rms				
42.a (37.d)	IMU MG ERROR input at -0.5 v output	v rms				
42.a (37.e)	IMU MG ERROR input at -1.5 v output	v rms				
42.a (37.f)	IMU MG ERROR input at -2.5 v output	v rms				
42.a (39.a)	IMU MG ERROR gain at +2.5 v output	v/v				
42.a (39.b)	IMU MG ERROR gain at +1.5 v output	v/v				

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (39.c)	IMU MG ERROR gain at +0.5 v output	v/v				
42.a (39.d)	IMU MG ERROR gain at -0.5 v output	v/v				
42.a (39.e)	IMU MG ERROR gain at -1.5 v output	v/v				
42.a (39.f)	IMU MG ERROR gain at -2.5 v output	v/v				
42.a (40)	IMU MG ERROR average gain	v/v				
42.a (41.a)	Difference between gain at +2.5 v output and average gain	percent			5	
42.a (41.b)	Difference between gain at +1.5 v output and average gain	percent			5	
42.a (41.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (41.d)	Difference between gain at -0.5 v output and average gain	percent			5	
42.a (41.e)	Difference between gain at -1.5 v output and average gain	percent			5	
42.a (41.f)	Difference between gain at -2.5 v output and average gain	percent			5	
42.b (30)	IMU OG ERROR offset (CG2177)	mv	-40		+40	
42.b (32)	IMU OG ERROR input	v rms	4.73		5.77	
42.b (34)	IMU OG ERROR ripple	mv p-p			15	
42.b (37.a)	IMU OG ERROR input at +2.5 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
41.d	Difference between gain at -0.5 v output and average gain	percent			5	
41.e	Difference between gain at -1.5 v output and average gain	percent			5	
41.f	Difference between gain at -2.5 v output and average gain	percent			5	
42.a (30)	IMU MG ERROR offset (CG2147)	mv	-40		+40	
42.a (32)	IMU MG ERROR input	v rms	4.73		5.77	
42.a (34)	IMU MG ERROR ripple	mv p-p			15	
42.a (37.a)	IMU MG ERROR input at +2.5 v output	v rms				

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (37.b)	IMU MG ERROR input at +1.5 v output	v rms				
42.a (37.c)	IMU MG ERROR input at +0.5 v output	v rms				
42.a (37.d)	IMU MG ERROR input at -0.5 v output	v rms				
42.a (37.e)	IMU MG ERROR input at -1.5 v output	v rms				
42.a (37.f)	IMU MG ERROR input at -2.5 v output	v rms				
42.a (39.a)	IMU MG ERROR gain at +2.5 v output	v/v				
42.a (39.b)	IMU MG ERROR gain at +1.5 v output	v/v				

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JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (39.c)	IMU MG ERROR gain at +0.5 v output	v/v				
42.a (39.d)	IMU MG ERROR gain at -0.5 v output	v/v				
42.a (39.e)	IMU MG ERROR gain at -1.5 v output	v/v				
42.a (39.f)	IMU MG ERROR gain at -2.5 v output	v/v				
42.a (40)	IMU MG ERROR average gain	v/v				
42.a (41.a)	Difference between gain at +2.5 v output and average gain	percent			5	
42.a (41.b)	Difference between gain at +1.5 v output and average gain	percent			5	
42.a (41.c)	Difference between gain at -0.5 v output and average gain	percent			5	

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.a (41.d)	Difference between gain at -0.5 v output and average gain	percent			5	
42.a (41.e)	Difference between gain at -1.5 v output and average gain	percent			5	
42.a (41.f)	Difference between gain at -2.5 v output and average gain	percent			5	
42.b (30)	IMU OG ERROR offset (CG2177)	mv	-40		+40	
42.b (32)	IMU OG ERROR input	v rms	4.73		5.77	
42.b (34)	IMU OG ERROR ripple	mv p-p			15	
42.b (37.a)	IMU OG ERROR input at +2.5 v output	v rms				

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
42.b (37.b)	IMU OG ERROR input at +1.5 v output	vrms					
42.b (37.c)	IMU OG ERROR input at +0.5 v output	vrms					
42.b (37.d)	IMU OG ERROR input at -0.5 v output	vrms					
42.b (37.e)	IMU OG ERROR input at -1.5 v output	vrms					
42.b (37.f)	IMU OG ERROR input at -2.5 v output	vrms					
42.b (39.a)	IMU OG ERROR gain at +2.5 v output	v/v					
42.b (39.b)	IMU OG ERROR gain at +1.5 v output	v/v					

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
42.b (39.c)	IMU OG ERROR gain at +0.5 v output	v/v					
42.b (39.d)	IMU OG ERROR gain at -0.5 v output	v/v					
42.b (39.e)	IMU OG ERROR gain at -1.5 v output	v/v					
42.b (39.f)	IMU OG ERROR gain at -2.5 v output	v/v					
42.b (40)	IMU OG ERROR average gain	v/v					
42.b (41.a)	Difference between gain at +2.5 v output and average gain	percent			5		
42.b (41.b)	Difference between gain at +1.5 v output and average gain	percent			5		
42.b (41.c)	Difference between gain at +0.5 v output and average gain	percent			5		

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ	ACC
42.b (41.d)	Difference between gain at -0.5 v output and average gain	percent			5		
42.b (41.e)	Difference between gain at -1.5 v output and average gain	percent			5		
42.b (41.f)	Difference between gain at -2.5 v output and average gain	percent			5		
47.a (46)	Y PTP output	vrms	4.80		5.20		
47.b (46)	Z PTP output	vrms	4.80		5.20		

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.b (37.b)	IMU OG ERROR input at +1.5 v output	vrms				
42.b (37.c)	IMU OG ERROR input at +0.5 v output	vrms				
42.b (37.d)	IMU OG ERROR input at -0.5 v output	vrms				
42.b (37.e)	IMU OG ERROR input at -1.5 v output	vrms				
42.b (37.f)	IMU OG ERROR input at -2.5 v output	vrms				
42.b (39.a)	IMU OG ERROR gain at +2.5 v output	v/v				
42.b (39.b)	IMU OG ERROR gain at +1.5 v output	v/v				

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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.b (39.c)	IMU OG ERROR gain at +0.5 v output	v/v				
42.b (39.d)	IMU OG ERROR gain at -0.5 v output	v/v				
42.b (39.e)	IMU OG ERROR gain at -1.5 v output	v/v				
42.b (39.f)	IMU OG ERROR gain at -2.5 v output	v/v				
42.b (40)	IMU OG ERROR average gain	v/v				
42.b (41.a)	Difference between gain at +2.5 v output and average gain	percent			5	
42.b (41.b)	Difference between gain at +1.5 v output and average gain	percent			5	
42.b (41.c)	Difference between gain at +0.5 v output and average gain	percent			5	

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JDC
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JOB SIGNAL CONDITIONER 3200 CPS CHANNEL TESTS - BLK I (100 series)

JDC ITEM NO.	PARAMETER	UNITS	MIN VALUE	RECORDED VALUE	MAX VALUE	REJ ACC
42.b (41.d)	Difference between gain at -0.5 v output and average gain	percent			5	
42.b (41.e)	Difference between gain at -1.5 v output and average gain	percent			5	
42.b (41.f)	Difference between gain at -2.5 v output and average gain	percent			5	
47.a (46)	Y PIP output	vrms	4.80		5.20	
47.b (46)	Z PIP output	vrms	4.80		5.20	

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Table II. DC Resistance Tests (cont)

Test	From (+)	To (-)	Meter Range
dk	336	540	Rx10K
dl	336	142	Rx10K
dm	336	242	Rx10K
dn	336	442	Rx10K
do	336	542	Rx10K
dp	336	144	Rx10K
dq	336	244	Rx10K
dr	336	444	Rx10K
ds	336	544	Rx10K
dt	336	146	Rx10K
du	336	246	Rx10K
dv	336	446	Rx10K
dw	336	546	Rx10K
dx	336	148	Rx10K
dy	336	248	Rx10K
dz	336	448	Rx10K
ea	336	548	Rx10K
eb	336	112	Rx10K
ec	336	312	Rx10K
ed	336	412	Rx10K
ee	336	512	Rx10K
ef	336	612	Rx10K
eg	336	213	Rx10K
eh	336	313	Rx10K
ei	422	119	Rx10K
ej	422	124	Rx10K
ek	422	224	Rx10K
el	422	324	Rx10K
em	422	424	Rx10K

Test	From (+)	To (-)	Meter Range
en	422	524	Rx10K
eo	422	624	Rx10K
ep	422	125	Rx10K
eq	422	225	Rx10K
er	422	325	Rx10K
es	422	425	Rx10K
et	422	525	Rx10K
eu	422	625	Rx10K
ev	422	126	Rx10K
ew	422	226	Rx10K
ex	Deleted		
ey	422	219	Rx10K
ez	422	319	Rx10K
fa	422	419	Rx10K
fb	422	519	Rx10K
fc	422	619	Rx10K
fd	422	120	Rx10K
fe	422	220	Rx10K
ff	422	320	Rx10K
fg	422	420	Rx10K
fh	422	520	Rx10K
fi	422	121	Rx10K
fj	422	321	Rx10K
fk	422	521	Rx10K
fl	422	122	Rx10K
fm	422	322	Rx10K
fn	422	123	Rx10K
fo	422	223	Rx10K
fp	422	323	Rx10K

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Table II. DC Resistance Tests (cont)

Test	From (+)	To (-)	Meter Range
fq	422	423	Rx10K
fr	422	523	Rx10K
fs	422	623	Rx10K
ft	422	138	Rx10K
fu	422	238	Rx10K
fv	422	338	Rx100K
fw	422	140	Rx10K
fx	422	440	Rx10K
fy	422	540	Rx10K
fz	422	142	Rx10K
ga	422	242	Rx10K
gb	422	442	Rx10K
gc	422	542	Rx10K
gd	422	144	Rx10K
ge	422	244	Rx10K
gf	422	444	Rx10K
gg	422	544	Rx10K
gh	422	146	Rx10K
gi	422	246	Rx10K
gj	422	446	Rx10K
gk	422	546	Rx10K
gl	422	148	Rx10K
gm	422	248	Rx10K
gn	422	448	Rx10K
go	422	548	Rx10K
gp	422	112	Rx10K
gq	422	312	Rx10K
gr	422	412	Rx10K
gs	422	512	Rx10K

Test	From (+)	To (-)	Meter Range
gt	422	612	Rx10K
gu	422	213	Rx10K
gv	422	313	Rx10K
gw	428	528	Rx10K
gx	522	119	Rx10K
gy	522	124	Rx10K
gz	522	224	Rx10K
ha	522	324	Rx10K
hb	522	424	Rx10K
hc	522	524	Rx10K
hd	522	624	Rx10K
he	522	125	Rx10K
hf	522	225	Rx10K
hg	522	325	Rx10K
hh	522	425	Rx10K
hi	522	525	Rx10K
hj	522	625	Rx10K
hk	522	126	Rx10K
hl	522	226	Rx10K
hm	Deleted		
hn	522	219	Rx10K
ho	522	319	Rx10K
hp	522	419	Rx10K
hq	522	519	Rx10K
hr	522	619	Rx10K
hs	522	120	Rx10K
ht	522	220	Rx10K
hu	522	320	Rx10K
hv	522	420	Rx10K

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Table II. DC Resistance Tests (cont)

Test	From (+)	To (-)	Meter Range
hw	522	520	Rx10K
hx	522	121	Rx10K
hy	522	321	Rx10K
hz	522	521	Rx10K
ia	522	122	Rx10K
ib	522	322	Rx10K
ic	522	123	Rx10K
id	522	223	Rx10K
ie	522	323	Rx10K
if	522	423	Rx10K
ig	522	523	Rx10K
ih	522	623	Rx10K
ii	522	138	Rx10K
ij	522	238	Rx10K
ik	522	338	Rx100K
il	522	140	Rx10K
im	522	440	Rx10K
in	522	540	Rx10K
io	522	142	Rx10K
ip	522	242	Rx10K
iq	522	442	Rx10K
ir	522	542	Rx10K
is	522	144	Rx10K
it	522	244	Rx10K
iu	522	444	Rx10K
iv	522	544	Rx10K
iw	522	146	Rx10K
ix	522	246	Rx10K
iy	522	446	Rx10K

Test	From (+)	To (-)	Meter Range
iz	522	546	Rx10K
ja	522	148	Rx10K
jb	522	248	Rx10K
jc	522	448	Rx10K
jd	522	548	Rx10K
je	522	112	Rx10K
jf	522	312	Rx10K
jf	522	412	Rx10K
jh	522	512	Rx10K
ji	522	612	Rx10K
jj	522	113	Rx10K
jk	522	313	Rx10K
jl	522	413	Rx10K
jm	522	124	Rx10K
jn	522	224	Rx10K
jo	522	324	Rx10K
jp	522	424	Rx10K
jq	522	524	Rx10K
jr	522	624	Rx10K
js	522	125	Rx10K
jt	522	225	Rx10K
ju	522	325	Rx10K
jv	522	425	Rx10K
jw	522	525	Rx10K
jx	522	625	Rx10K
iy	522	126	Rx10K
jz	522	226	Rx10K
ka	Deleted		
kb	522	219	Rx10K

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Table II. DC Resistance Tests (cont)

Test	From (+)	To (-)	Meter Range
kc	622	319	Rx10K
kd	622	419	Rx10K
ke	622	519	Rx10K
kf	622	619	Rx10K
kg	622	120	Rx10K
kh	622	220	Rx10K
ki	622	320	Rx10K
kj	622	420	Rx10K
kk	622	520	Rx10K
kl	622	121	Rx10K
km	622	321	Rx10K
kn	622	521	Rx10K
ko	622	122	Rx10K
kp	622	322	Rx10K
kq	622	422	Rx10K
kr	622	522	Rx10K
ks	622	622	Rx10K
kt	622	123	Rx10K
ku	622	323	Rx10K
kv	622	523	Rx10K
kw	622	623	Rx10K
kx	622	138	Rx10K
ky	622	238	Rx10K
kz	622	338	Rx100K
la	622	440	Rx10K

Test	From (+)	To (-)	Meter Range
lb	622	540	Rx10K
lc	622	142	Rx10K
ld	622	242	Rx10K
le	622	442	Rx10K
lf	622	542	Rx10K
lg	622	144	Rx10K
lh	622	244	Rx10K
li	622	444	Rx10K
lj	622	544	Rx10K
lk	622	146	Rx10K
lm	622	246	Rx10K
ln	622	446	Rx10K
lo	622	546	Rx10K
lp	622	148	Rx10K
lq	622	248	Rx10K
lr	622	448	Rx10K
ls	622	548	Rx10K
lt	622	112	Rx10K
lu	622	312	Rx10K
lv	622	412	Rx10K
lw	622	512	Rx10K
lx	622	612	Rx10K
ly	622	712	Rx10K
lz	639	422	Rx10K

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SUBSYSTEM INERTIAL

ASSY

Table II. DC Resistance Tests (cont)

Test	From (+)	To (-)	Meter Range
ma	639	522	Rx1M
mb	639	622	Rx1M
mc	639	136	Rx1M
md	639	336	Rx1M
me	639	236	Rx1M
mf	639	436	Rx1M
mg	639	119	Rx1M

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JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC
NO. 18874
REV. A
INITIAL TDRR 31000

ASSEMBLY UNDER TEST				TEST HISTORY				
TITLE	DATE	START	END	SITE / LOCATION	TIME	START	END	TOTAL ELAPSED
SER. NO.	DWG	REV.						
MAJOR GROUND SUPPORT EQUIPMENT								
NAME	SER. NO.	CAL DATE						
NAME	SER. NO.	CAL DATE						
CONDUCTED BY				APPROVED BY				
NAME/AFFILIATION				NAME/AFFILIATION				

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.2	Continuity	meg-ohms	100			
				All continuity tests indicate open circuits (100 megohms minimum). If not, indicate under REMARKS.		
B.3.a	Deleted					
B.3.b	Resistance	kilohms	11.5			
B.3.c	Resistance		11.5			
B.3.d	Resistance		11.5			
B.3.e	Resistance		2.0			
B.3.f	Resistance		4.3			
B.3.g	Resistance		4.3			
B.3.h	Resistance		4.3			
B.3.i	Resistance		4.3			
B.3.j	Resistance		4.3			
B.3.k	Resistance		4.3			
B.3.l	Resistance		4.3			
B.3.m	Resistance	kilohms	4.3			

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JOB CDU PRE-POWER ASSURANCE TEST (LEM)

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EQUIPMENT TEST
DATA SHEET 3 OF 14

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC
NO. 18874
REV. A

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.n	Resistance	kilohms	4.3			
B.3.o	Resistance		4.3			
B.3.p	Resistance		4.3			
B.3.q	Resistance		4.3			
B.3.r	Resistance		4.3			
B.3.s	Resistance		4.3			
B.3.t	Resistance		1.0			
B.3.u	Resistance		5.0			
B.3.v	Resistance		5.0			
B.3.w	Resistance		5.0			
B.3.x	Resistance		5.0			
B.3.y	Resistance		5.0			
B.3.z	Resistance		5.0			
B.3.aa	Resistance		5.0			
B.3.ab	Resistance		5.0			
B.3.ac	Resistance		5.0			
B.3.ad	Resistance		5.0			
B.3.ae	Resistance		30.0			
B.3.af	Resistance		30.0			
B.3.ag	Resistance		30.0			
B.3.ah	Resistance		30.0			
B.3.ai	Resistance		30.0			
B.3.aj	Resistance		5.0			
B.3.ak	Resistance		5.0			
B.3.al	Resistance	kilohms	5.0			

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EQUIPMENT TEST
DATA SHEET 4 OF 14

JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ / CC
B.3.bn	Resistance	kilohms	30.0			
B.3.bo	Resistance		30.0			
B.3.bp	Resistance		30.0			
B.3.bq	Resistance		23.5			
B.3.br	Resistance	kilohms	23.5			
B.3.bs	Resistance	ohms	55.0			
B.3.bt	Resistance	ohms	2.35			
B.3.bu	Resistance	kilohms	1.2			
B.3.bv	Resistance		5.6			
B.3.bw	Resistance		5.6			
B.3.bx	Resistance		5.6			
B.3.by	Resistance		5.6			
B.3.bz	Resistance		5.6			
B.3.ca	Resistance		5.6			
B.3.cb	Resistance		5.6			
B.3.cc	Resistance		5.6			
B.3.cd	Resistance		5.6			
B.3.ce	Resistance		5.6			
B.3.cf	Resistance		5.6			
B.3.cg	Resistance		5.6			
B.3.ch	Resistance		5.6			
B.3.ci	Resistance		5.6			
B.3.cj	Deleted					
B.3.ck	Resistance		5.6			
B.3.cl	Resistance		5.6			
B.3.cm	Resistance		5.6			
B.3.cn	Resistance	kilohms	5.6			

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EQUIPMENT TEST
DATA SHEET 5 OF 14

JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ / ACC
B.3.co	Resistance	kilohms	5.6			
B.3.cp	Resistance		5.6			
B.3.cq	Resistance		5.6			
B.3.cr	Resistance		5.6			
B.3.cs	Resistance		5.6			
B.3.ct	Resistance		5.6			
B.3.cu	Resistance		30.0			
B.3.cv	Resistance		30.0			
B.3.cw	Resistance		30.0			
B.3.cx	Resistance		30.0			
B.3.cy	Resistance		30.0			
B.3.cz	Resistance		5.6			
B.3.da	Resistance		5.6			
B.3.db	Resistance		5.6			
B.3.dc	Resistance		5.6			
B.3.dd	Resistance		5.6			
B.3.de	Resistance		15.0			
B.3.df	Resistance		1.2			
B.3.dg	Resistance		22.0			
B.3.dh	Resistance		22.0			
B.3.di	Resistance		22.0			
B.3.dj	Resistance		22.0			
B.3.dk	Resistance		1.2			
B.3.dl	Resistance		22.0			
B.3.dlm	Resistance		1.2			
B.3.dn	Resistance		22.0			
B.3.do	Resistance	kilohms	1.2			

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EQUIPMENT TEST
DATA SHEET 6 OF 14

JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ / ACC
B.3.dp	Resistance	kilohms	22.0			
B.3.dq	Resistance		1.2			
B.3.dr	Resistance		22.0			
B.3.ds	Resistance		1.2			
B.3.dt	Resistance		22.0			
B.3.du	Resistance		1.2			
B.3.dv	Resistance		22.0			
B.3.dw	Resistance		1.2			
B.3.dx	Resistance		22.0			
B.3.dy	Resistance		1.2			
B.3.dz	Resistance		22.0			
B.3.ea	Resistance		1.2			
B.3.eb	Resistance		25.0			
B.3.ec	Resistance		30.0			
B.3.ed	Resistance		30.0			
B.3.ee	Resistance		30.0			
B.3.ef	Resistance		30.0			
B.3.eg	Resistance		24.0			
B.3.eh	Resistance		24.0			
B.3.ei	Resistance		10.0			
B.3.ej	Resistance		14.0			
B.3.ek	Resistance		14.0			
B.3.el	Resistance		14.0			
B.3.em	Resistance		14.0			
B.3.en	Resistance		14.0			
B.3.eo	Resistance		14.0			
B.3.ep	Resistance	kilohms	14.0			

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EQUIPMENT TEST
DATA SHEET 7 OF 14

JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ / ACC
B.3.eq	Resistance	kilohms	14.0			
B.3.er	Resistance		14.0			
B.3.es	Resistance		14.0			
B.3.et	Resistance		14.0			
B.3.eu	Resistance		14.0			
B.3.ev	Resistance		14.0			
B.3.ew	Resistance		14.0			
B.3.ex	Deleted					
B.3.ey	Resistance		14.0			
B.3.ez	Resistance		14.0			
B.3.fa	Resistance		14.0			
B.3.fb	Resistance		14.0			
B.3.fc	Resistance		14.0			
B.3.fd	Resistance		14.0			
B.3.fe	Resistance		14.0			
B.3.ff	Resistance		14.0			
B.3.fg	Resistance		14.0			
B.3.fh	Resistance		14.0			
B.3.fi	Resistance		38.0			
B.3.fj	Resistance		38.0			
B.3.fk	Resistance		38.0			
B.3.fl	Resistance		38.0			
B.3.fm	Resistance		14.0			
B.3.fn	Resistance		14.0			
B.3.fo	Resistance		14.0			
B.3.fp	Resistance		14.0			
B.3.fq	Resistance	kilohms	14.0			

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EQUIPMENT TEST
DATA SHEET 3 OF 14

JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.fr	Resistance	kilohms	14.0			
B.3.fs	Resistance		14.0			
B.3.ft	Resistance		30.0			
B.3.fv	Resistance		10.0			
B.3.fw	Resistance		60.0			
B.3.fx	Resistance		30.0			
B.3.fy	Resistance		30.0			
B.3.fz	Resistance		10.0			
B.3.ga	Resistance		10.0			
B.3.gb	Resistance		30.0			
B.3.gc	Resistance		10.0			
B.3.gd	Resistance		30.0			
B.3.ge	Resistance		10.0			
B.3.gf	Resistance		30.0			
B.3.gg	Resistance		10.0			
B.3.gh	Resistance		30.0			
B.3.gi	Resistance		10.0			
B.3.gj	Resistance		30.0			
B.3.gk	Resistance		10.0			
B.3.gl	Resistance		30.0			
B.3.gm	Resistance		10.0			
B.3.gn	Resistance		30.0			
B.3.go	Resistance		10.0			
B.3.gp	Resistance		36.0			
B.3.gq	Resistance		36.0			
B.3.gr	Resistance	kilohms	36.0			

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EQUIPMENT TEST
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JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.gs	Resistance	kilohms	36.0			
B.3.gt	Resistance		36.0			
B.3.gv	Resistance		36.0			
B.3.gw	Resistance	kilohms	36.0			
B.3.gx	Resistance	ohms	50.0			
B.3.gy	Resistance	kilohms	12.2			
B.3.gz	Resistance		16.0			
B.3.ha	Resistance		16.0			
B.3.hb	Resistance		16.0			
B.3.hc	Resistance		16.0			
B.3.hd	Resistance		16.0			
B.3.he	Resistance		16.0			
B.3.hf	Resistance		16.0			
B.3.hg	Resistance		16.0			
B.3.hh	Resistance		16.0			
B.3.hi	Resistance		16.0			
B.3.hj	Resistance		16.0			
B.3.hk	Resistance		16.0			
B.3.hl	Resistance		16.0			
B.3.hm	Deleted					
B.3.hn	Resistance		16.0			
B.3.ho	Resistance		16.0			
B.3.hp	Resistance		16.0			
B.3.hq	Resistance		16.0			
B.3.hr	Resistance		16.0			
B.3.hs	Resistance	kilohms	16.0			

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EQUIPMENT TEST
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JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.ht	Resistance	kilohms	16.0			
B.3.hu	Resistance		16.0			
B.3.hv	Resistance		16.0			
B.3.hw	Resistance		16.0			
B.3.hx	Resistance		40.0			
B.3.hy	Resistance		40.0			
B.3.hz	Resistance		40.0			
B.3.ia	Resistance		40.0			
B.3.ib	Resistance		40.0			
B.3.ic	Resistance		16.0			
B.3.id	Resistance		16.0			
B.3.ie	Resistance		16.0			
B.3.if	Resistance		16.0			
B.3.ig	Resistance		16.0			
B.3.ih	Resistance		16.0			
B.3.ii	Resistance		32.0			
B.3.ij	Resistance		12.0			
B.3.ik	Resistance		80.0			
B.3.il	Resistance		32.0			
B.3.im	Resistance		32.0			
B.3.in	Resistance		12.0			
B.3.io	Resistance		32.0			
B.3.ip	Resistance		12.0			
B.3.iq	Resistance		32.0			
B.3.ir	Resistance		12.0			
B.3.is	Resistance		32.0			
B.3.it	Resistance	kilohms	12.0			

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EQUIPMENT TEST
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JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.ia	Resistance	kilohms	32.0			
B.3.iv	Resistance		12.0			
B.3.iw	Resistance		32.0			
B.3.ix	Resistance		12.0			
B.3.iy	Resistance		32.0			
B.3.iz	Resistance		12.0			
B.3.ja	Resistance		32.0			
B.3.jb	Resistance		12.0			
B.3.jc	Resistance		32.0			
B.3.jd	Resistance		12.0			
B.3.je	Resistance		35.0			
B.3.jf	Resistance		40.0			
B.3.jg	Resistance		40.0			
B.3.jh	Resistance		40.0			
B.3.ji	Resistance		40.0			
B.3.jj	Resistance		35.0			
B.3.jk	Resistance		35.0			
B.3.jl	Resistance		12.0			
B.3.jm	Resistance		16.0			
B.3.jn	Resistance		16.0			
B.3.jo	Resistance		16.0			
B.3.jp	Resistance		16.0			
B.3.jq	Resistance		16.0			
B.3.jr	Resistance		16.0			
B.3.js	Resistance		16.0			
B.3.jt	Resistance		16.0			
B.3.ju	Resistance	kilohms	16.0			

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EQUIPMENT TEST
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JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.jv	Resistance	kilohms	16.0			
B.3.jw	Resistance		16.0			
B.3.jx	Resistance		16.0			
B.3.jy	Resistance		16.0			
B.3.jz	Resistance		16.0			
B.3.ka	Deleted					
B.3.kb	Resistance		16.0			
B.3.kc	Resistance		16.0			
B.3.kd	Resistance		16.0			
B.3.ke	Resistance		16.0			
B.3.kf	Resistance		16.0			
B.3.kg	Resistance		16.0			
B.3.kh	Resistance		16.0			
B.3.ki	Resistance		16.0			
B.3.kj	Resistance		16.0			
B.3.kk	Resistance		16.0			
B.3.kl	Resistance		40.0			
B.3.km	Resistance		40.0			
B.3.kn	Resistance		40.0			
B.3.ko	Resistance		40.0			
B.3.kp	Resistance		40.0			
B.3.kq	Resistance		16.0			
B.3.kr	Resistance		16.0			
B.3.ks	Resistance		16.0			
B.3.kt	Resistance		16.0			
B.3.ku	Resistance		16.0			
B.3.kv	Resistance	kilohms	16.0			

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REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.lx	Resistance	kilohms	35.0			
B.3.ly	Resistance	kilohms	35.0			
B.3.lz	Resistance	meg- ohms			70.0	
B.3.ma	Resistance				70.0	
B.3.mb	Resistance				70.0	
B.3.mc	Resistance				70.0	
B.3.md	Resistance				70.0	
B.3.me	Resistance				70.0	
B.3.mf	Resistance				70.0	
B.3.mg	Resistance	meg- ohms			70.0	

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JDC
NO. 18874
REV. A

JOB CDU PRE-POWER ASSURANCE TEST (LEM)

JDC ITEM NO.	PARAMETER	UNITS	NOM VALUE	RECORDED VALUE	MIN VALUE	REJ ACC
B.3.kw	Resistance	kilohms	32.0			
B.3.kx	Resistance		12.0			
B.3.ky	Resistance		80.0			
B.3.kz	Resistance		32.0			
B.3.la	Resistance		32.0			
B.3.lb	Resistance		12.0			
B.3.lc	Resistance		32.0			
B.3.ld	Resistance		12.0			
B.3.le	Resistance		32.0			
B.3.lf	Resistance		12.0			
B.3.lg	Resistance		32.0			
B.3.lh	Resistance		12.0			
B.3.li	Resistance		32.0			
B.3.lj	Resistance		12.0			
B.3.lk	Resistance		32.0			
B.3.ll	Resistance		12.0			
B.3.lm	Resistance		32.0			
B.3.ln	Resistance		12.0			
B.3.lo	Resistance		32.0			
B.3.lp	Resistance		12.0			
B.3.lq	Resistance		32.0			
B.3.lr	Resistance		12.0			
B.3.ls	Resistance		35.0			
B.3.lt	Resistance		40.0			
B.3.lu	Resistance		40.0			
B.3.lv	Resistance		40.0			
B.3.lw	Resistance	kilohms	40.0			

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